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ANNUAL REPORT
OF THE
BOARD OF HEALTH
OF MISSOURI
1888.

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ANNUAL REPORT

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OF THE

STATE BOARD OF HEALTH

OF MISSOURI

TO THE GOVERNOR

FOR 1888.

JEFFERSON CITY, MO.:

TRIBUNE PRINTING COMPANY, STATE PRINTERS AND BINDERS.

1890.

To Hon. A. P. MOREHOUSE, *Governor*:

SIR—In conformity with the requirements of section 17, Board of Health act, the accompanying report of the State Board of Health for the year 1888 is respectfully submitted for your consideration, and such disposition as your pleasure may dictate.

By the Board.

GEORGE HOMAN, Secretary.

MEMBERS OF THE BOARD.

ORGANIZATION FOR 1888, AND OFFICIAL TERMS OF MEMBERS

MR. WILLIAM GENTRY, President ..	Sedalia.....	Term expires July 2, 1892
ALBERT MERRELL, M. D., Vice-Pres.	St. Louis.....	Term expires July 2, 1894
GEORGE HOMAN, M. D., Sec'y.	St. Louis.....	Term expires July 2, 1894
J. D. GRIFFITH, M. D., Treasurer.....	Kansas City	Term expires July 2, 1894
G. A. GOBEN, M. D.....	Kirksville.....	Term expires July 2, 1892
MR. J. B. PRA THER.....	Maryville	Term expires July 2, 1892
G. M. COX, M. D.....	Springfield....	Term expires July 2, 1892

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GENERAL REPORT OF THE BOARD.

To the Governor:

Section 17 of the act creating the State Board of Health is as follows:

It shall be the duty of the Board of Health to make an annual report, through their secretary or otherwise, in writing, to the Governor of this State, on or before the first of January of each year, and such report shall include so much of the proceedings of the Board, and such information concerning vital and mortuary statistics, such knowledge respecting diseases, and such instructions on the subject of hygiene, as may be thought useful by the Board for dissemination among the people, with such suggestions as to legislative action as they may deem necessary.

No separate report was made for 1887, the reason for such omission being the uncertainties of the situation as related to the Board, and its embarrassed condition due to the complete failure of the General Assembly to make any financial provision whatever for its support at either the regular or called session in the winter and spring of that year. The matter of this report, however, includes much relating to that year.

An additional source of embarrassment was the expiration of the terms of office of three of its members, all of them being officials of the Board, and this, together with a failure to arrive at a knowledge of the wishes of the Executive in the matter of the vacancies thus occurring, gave rise to perplexity and uncertainty. The expirations of these official terms occurred in midsummer, but no action in regard to them was taken until the following February.

In the most trying period of uncertainty in this respect, the Board debated fully the question of the advisability of surrendering their trust and disbanding the organization, but after maturely considering all the circumstances, concluded that the duty of saving to the public what had been gained in sanitary legislation only after years of effort should outweigh all personal considerations, and it was unanimously resolved to contribute out of their private means a monthly sum to be applied to meet the current expenses of the work, and continue to do their duty to the extent of their ability, in the hope that the State would eventually recognize the importance of the subject, and grant the necessary support to fulfill the law in all respects.

The work of the Board as laid down by law falls naturally into two distinct and separate parts, although both have co-operative purposes, under the special enactments defining the powers and prescribing the duties of this body: namely, the Board of Health act, relating to the sanitary and vital interests of the State, and the administration of the Medical Practice act, which in effect constitutes this body a Board of medical examiners, charged with the duty of examining candidates in regard to their qualifications to practice, the verification of diplomas, granting of certificates entitling to practice, etc., etc.

These several respective duties have been discharged as fully and faithfully as the embarrassed circumstances of the board would admit, and even with the numerous practical difficulties experienced, and drawbacks that beset such performance, the results of the efforts made in this direction are, it is believed, salutary, and that the public health interests of the State have been promoted, and the general public protected to some extent from the injurious impositions and pretensions of incompetent and dishonest practitioners of medicine.

Considering the sanitary interests of Missouri and the depression under which they have labored, attention is directed to the exhibit made on subsequent pages of this report of the unprotected condition against all forms of disease of a great portion of the territory of the State.

The Board, realizing that one of the best ways to secure improvement in the sanitary defenses of the State would be to show the present weakness and helplessness of many communities in this respect, and their inability to speedily and successfully contend against epidemic diseases should they make their appearance in their midst, during the present year solicited information on this point from every county in the State, the condensed results of which appear elsewhere, and which show, as compared with many of our neighboring States, a deplorable lack of organization, and of unreadiness to meet pestilential contingencies that may suddenly arise at any time.

In the State of Minnesota, for example, there are at present over twelve hundred boards of health, whose individual work in stamping out disease, promoting public health, making returns of births, deaths, etc., etc., is systematically directed and co-ordinated by a State Board of Health having ample funds at its disposal for efficient sanitary work original in character or supplemental to that of the local bodies. The work of sanitary organization by counties and towns is being actively inaugurated or is approaching perfection in a number of other western States—Illinois, Michigan, Iowa, Indiana, Tennessee and Ohio being examples.

The distressing and disastrous effects on the *morale*, health and business of a large part of the country of neglect of precaution in this respect were shown on an unhappily large scale during last summer and fall, from Florida to Texas, and northward even beyond the Ohio river. The wave of fear and panic, which started in the extreme south-east in apprehensions of the spread of yellow fever, swept this entire territory, its effects even reaching into this State, and being shown in a declaration of quarantine against railroad travel coming from the south by the authorities of a city near our southern border.

There is very good reason to believe that had the sanitary defenses of Florida been thoroughly organized in the form of an efficient State Board of Health, with auxiliary boards in every county and town, the pestilential emergency would have been confronted and dealt with in a manner that would have confined the disease to its place of origin, commanded the confidence and strengthened the moral courage of the people, and prevented the wild, wasteful and cruel epidemic of alarm and frenzy that spread over the country, interrupting travel, destroying business and suspending social intercourse for many days' through quarantines imposed either from a frightened consciousness of local vulnerability, or a want of competent sanitary authority to consult and advise in regard to the demands of the situation and the measures needed to meet them.

Experiences of the same kind on a small scale have been witnessed this year in Missouri, several outbreaks of small-pox having occurred in the State in localities where sanitary organization had been neglected, and the people were taken unawares by the introduction and development of the disease in their midst.

The record of these several outbreaks is given in subsequent pages of this report as fully as possible ; and it is to be noted that the lesson taught has not been unheeded, and that in the localities concerned the value of boards of health has been recognized, and they have been established it is hoped on an effective and firm foundation.

In one of these outbreaks it was found necessary to send to St. Louis for a physician to take charge before an effectual check was put to the spread of the disease, and valuable time was otherwise lost before organization was perfected.

In this connection the Board would renew the recommendation made in the last annual report concerning the State vaccine laboratory, that this institution should be so liberally supported as to enable it to enlarge the scope of its operations and furnish free virus to the people of the State through all duly constituted local health authorities.

The subject of compulsory vaccination is also submitted to your attention. Certainly where the means of protection against a loathsome disease is so simple and safe, the use of such means should be made obligatory in the interest of the general good, and at least all children of school age should be required to undergo this operation and secure the protection it confers, and the safety of the rising generation in this respect be assured.

In this period of progress and enlightenment, spreading outbreaks of small-pox are a sanitary reproach to the people and the State, as the faithful general use of the means provided would in course of time completely eradicate the disease, and it would disappear from civilized countries.

The uprising and prevalence of other forms of dangerous disease are also shown in the proper place, with the fatalities incident to the spread of epidemics among children, even in a place with the sanitary resources and equipment possessed by the city of St. Louis.

Fragmentary reports and information received from different points in the State, as well as advices from States where statistics of this kind are carefully kept, show that diphtheria and scarlet fever are the foes most to be dreaded by the youth and children of our population, and call urgently for the most strenuous efforts on the part of both local and State authorities to check their spread and limit as much as possible their destructive progress.

Measures to this end can only be effectively instituted when every death occurring in the State from such cause, and every case that occurs, is promptly reported by the attending physician or the family concerned, and then the necessary steps at once taken to strictly isolate the sick person, with complete disinfection of all possible carriers of contagion, and public notice forthwith given of the presence of a dangerous disease.

The claim is frequently made that Missouri is a healthy State, but the assertion goes for naught in the absence of proof, which can only be afforded by a careful system of prompt reports of all cases of communicable diseases and the resulting deaths, and then comparing these mortality and morbidity statistics, and the totals of all other deaths occurring, with similar records of other States for the same periods.

The claim made will be found to have little foundation in fact, for it is not reasonable to suppose that there is a special interposition of Providence in favor of the children of this State against the ravages of diphtheria, scarlet fever and other plagues, when it is fully known that in neighboring States children are steadily falling before the same diseases—the difference being simply that the real facts are not known

or are concealed on the one hand, while on the other there is an intelligent recognition of the situation, with knowledge of the danger and preparation to resist the spread of the evil by all means known to the resources of sanitary science.

Dwellers in a fools' paradise of any kind are always liable to rude awakenings, and this is especially true in regard to matters of health and life, when the treacherous and uncertain nature and behavior of nearly all the acute diseases that are most fatal are remembered. To first ascertain as fully as possible the extent of a threatened or probable danger, and then with intelligent prudence and foresight prepare to meet it, is almost axiomatic as a safe rule of conduct in every field of human effort.

The meeting of the local health authorities of the State, held in St. Louis on December 4, marked, it is believed, the beginning of a new era in sanitary matters, of co-operative efforts and improved methods in public health work. The questions discussed were all of a practical character, and the necessity for additional legislation making obligatory the creation of local boards of health was clearly shown. The bill for this purpose agreed upon and recommended for passage is in substance the best that could be devised, all things considered, and it is hoped that it will receive the favorable consideration of the General Assembly at the coming session.

The Board would also renew the recommendation made in the last report in regard to amendments to the present Board of Health act—the changes suggested in this respect having been also approved at the meeting named.

Section 3 of the act cited reads as follows :

The State Board of Health shall have general supervision over the health and the sanitary interests of the citizens of the State. It shall be their duty to recommend to the General Assembly of the State such laws as they may deem necessary to improve and advance the sanitary condition of the State; to recommend to the municipal authorities of any city, or the county court of any county, the adoption of any rules that they may deem wise or expedient for the protection and preservation of the health of the citizens thereof.

The facts cited on subsequent pages of this report as regards local outbreaks of disease, the total lack of preparation for their control, and the proven inefficiency of the present system, or want of system, emphasize the fundamental necessity for a well-organized local health service throughout the State. While this is fully recognized, the independent action of local organizations might at the same time prove serious impediments to commerce and do much needless injury to surrounding communities, if not co-ordinated by a discriminating supervisory control on the part of the State Board. The bill recommended

is intended to provide for both these features, and is therefore submitted as being in accordance with the spirit and intent of the above quoted section.

As sources and channels of information in regard to the existence of disease in different localities, their nature, fatalities, etc., deaths, marriages and divorces, the value of such local boards can scarcely be over-estimated.

With this serious deficiency in State sanitation supplied by a well-considered law, there remains the question of the amount of financial support to be given to the State Board for public health purposes, in fulfillment of the objects set forth in its organic law.

In order to have all possible light on this subject, correspondence has been had with all similar bodies of this kind in the United States. The results are set out in detail in subsequent pages, and no doubt comprise the latest and most comprehensive information on the subject in the same compass anywhere attainable.

The Board would ask that provision for the prosecution of its proper work be made on a scale not less liberal than that of other States which, in area and population, are about the same as Missouri, as, for example, Illinois, Minnesota or Michigan.

The Boards of these States receive, annually, for current expenses, an average of more than \$6,000, with contingent funds for use in resisting epidemics and in making special sanitary investigations ranging from \$10,000 to \$40,000.

In a number of States, both eastern and western, there are contingent funds especially provided to prevent the introduction and spread of imported diseases, with additional sums ranging from \$5,000 to over \$50,000, to be expended in the prosecution of investigations into the subjects of the pollution of streams and natural sources of water supply, impurities and adulterations of foods, drugs, etc., and in tracing to their origin local outbreaks of domestic spreading diseases.

The Board would ask that these important ends be considered in the amount of contingent funds appropriated.

The demands of preventive medicines are imperative and paramount, inasmuch as they relate chiefly to large elements of our population which cannot speak for themselves in this respect, namely, infancy, childhood and youth, among whom the wastings of disease are known to be needlessly and shockingly great; and the interests of present and future generations, as well as the claims of civilization and progress, demand that the State shall bestir itself and be fully abreast of her most enterprising neighbors in all that relates to the avoidance of disease and the protection and promotion of the health of her people.

The administration of the Medical Practice act has been pursued in accordance with the principles indicated in the last report in this respect—no deviation in essential matters having occurred since the Board was reorganized July 2, 1885.

No disciplinary measures have been resorted to. In a number of instances where it appeared that the spirit and purpose of the law, as regards honest dealing toward the public on the part of those to whom the certificates of the Board had been issued, was being violated, usually through ignorance or misconception, a cautionary notice in a friendly spirit was sufficient to effect a change in the direction desired; and in cases of illegal practice coming to the notice of the Board, the attention of local authorities concerned has been called to such violations, and the remedy and penalties provided pointed out.

That such enactments, when well administered, operate beneficially both to the public and the medical profession, has been fully demonstrated in the experience of a neighboring State extending through a term of years; and the example of the pioneer States in this respect is being gradually imitated, and now about seven or eight have such laws on their statute books.

The practical operation and effect of such laws is to exclude from medical practice the incompetent and dishonest, first by a demand on medical colleges that they shall include in the course of study all the fundamental and essential subjects and branches, that the equipment and appliances for teaching and number of teachers shall be sufficient, and that the college term shall be not less than a certain length annually. Failure to conform in these respects exposes its diplomas to the danger of rejection on the ground that the school is not in good standing educationally, and subjects the holders to examination by the Board as a test of their qualification to practice.

Another way in which such laws have a restraining and salutary effect is the power given to revoke certificates when the holders and owners are guilty of unprofessional or dishonorable conduct. The courts have defined such conduct to consist essentially in misleading and dishonest claims and professions as to ability to cure or treat disease—in brief, the practice of false pretenses toward the public—and have fully affirmed the right of the licensing body to revoke certificates for such cause after a hearing.

The Board have at present no amendments to the act to suggest other than to call attention to the fact that the fee required to be paid under it is very small—one dollar—while the fee under the same law in Iowa and Illinois is respectively three and five dollars. In the latter State the income from this source is such as to enable a considerable

reduction to be made in the amount appropriated out of the general revenue, the decrease in this respect for the last two years being about six thousand dollars; the fees collected almost if not entirely covering the cost of administering the law, and relieving the State to that extent.

The passage of a local board of health act would greatly promote the efficient working of this law, as it would place the Board in close communication locally with the medical profession, and violations of law in this respect could be more easily prevented or corrected. The complete registration of all physicians and midwives in the State is necessary to a perfect system of returns of births, deaths, etc., and the common co-operative purpose of the two acts is in this manner made clearly evident.

REPORT OF THE SECRETARY.

As required by law, an abstract of the proceedings of the Board had at the several meetings in the years 1887 and 1888 is subjoined hereto. These meetings have been regularly held, and all business arising or presented has been as promptly disposed of as its nature would admit. On but one such occasion was it found that a quorum of members was not present at the time and place designated for the meeting. Members from distant parts of the State have cheerfully left their private business and ignored pressing professional engagements, and at considerable expense in time and means have discharged faithfully the duties imposed upon them as members of the Board. More than this, they have taxed themselves in a monthly sum for the furtherance of the work of the Board.

The registry of physicians (graduates) has reached a numerical total at this date (Dec. 17) of 3,680. A revision of this list, however, would show many deaths and removals, no such revision having been made since the registration was begun. To this apparent total of graduates there should be added 978 non-graduates and 26 licensed upon examination, making a grand total of 4,684 licenses issued since the organization of the Board. This, however, probably does not represent the whole number of medical practitioners in the State, as there are many exempt who have not or could not register, and others who are practicing in violation of law.

A total of 508 midwives have been granted certificates.

Full details in regard to certificates issued in 1887 and 1888 will be given in a supplemental report to be made next month, when it will be possible to give the complete figures for the present year.

The fees received from this source have been devoted to meeting the expenses of the Board, and notwithstanding the needs of the Board in this respect, about fifty applications for license have been declined as coming from persons exempt, or unqualified and unfit, professionally or morally, to receive such recognition.

The small amount of means provided has been expended in clerk hire, stationery, postage, printing, etc., none being available to pay office rent. The work done has been more difficult and laborious for this reason, entailing many disadvantages, as the papers and books of the Board are scattered in a number of different places, and valuable records that could not be replaced are liable to be wholly lost or destroyed by fire.

The correspondence of the office is large and increasing, several thousand written communications having been sent out during the year, while the task of receiving, examining and properly returning the diplomas sent for verification by mail or express forms no inconsiderable part of the work that is required to be performed.

FINANCIAL STATEMENT.

Financial statement of Treasurer of the State Board of Health of Missouri, exhibiting:

1. The expenses incurred by members of the Board in the discharge of official duty.
2. The amounts of voluntary assessments contributed monthly by the members; and
3. The deficiency account of unpaid salary of the Secretary from July 2, 1885, to January 1, 1889.

Expense accounts of members for 1887 and 1888, payable under provisions of section 17, Board of Health act, approved March 29, 1883, for traveling and other expenses while employed on the business of the Board:

Wm. Gentry.....	\$171 60	
J. D. Griffith.....	129 80	
G. A. Goben.....	160 75	
George Homan.....	129 35	
J. B. Prather.....	88 35	
Albert Merrell.....	15 40	
G. M. Cox.....	42 80	
Total.....		\$738 05

Contributions by members toward defraying Board expenses from March to December, inclusive, 1888, at the rate of five (5) dollars each per month:

Wm. Gentry.....	\$50 00	
J. D. Griffith.....	50 00	
G. A. Goben.....	50 00	
J. B. Prather.....	50 00	
Albert Merrell.....	50 00	
George Homan.....	50 00	
Total.....		\$300 00

Accrued salary of the Secretary of the Board, due and payable, at the rate of two thousand dollars (\$2,000) per annum, from July 1, 1885, to January 1, 1889, as fixed by the State Board of Health under section 14, Board of Health act, approved March 29, 1883:

From July 2, 1885, to January 1, 1886.....	\$1,000 00	
January 1, 1886, to January 1, 1887.....	2,000 00	
January 1, 1887, to January 1, 1888.....	2,000 00	
January 1, 1888, to January 1, 1889.....	2,000 00	
Total.....		\$7,000 00
Total deficiency account.....		\$8,038 05

I submit the foregoing statement as being a true exhibit of the financial expenditures and deficiencies of the State Board of Health for the years 1887 and 1888, and accrued salary of the Secretary for the periods stated.

(Signed)

J. D. GRIFFITH, Treasurer.

I hereby certify the above statement to be correct.

(Signed)

WM. GENTRY, President.

Correct—attest: GEO. HOMAN, Secretary.

Form and style of receipt given to members of the Board on payment by them of monthly contributions:

150	:	150
STATE BOARD OF HEALTH:	:	STATE BOARD OF HEALTH OF MISSOURI.
	:	
	:	St. Louis,.....1888.
Received	:	In accordance with a resolution passed February
	:	27, 1888, pledging each member to contribute Five Dol-
	:	lars per month during the current year, beginning
	:	March 1, to meet the necessary expenses of the work of
	:	the Board.
The sum of FIVE DOLLARS toward:	:	Received of.....Five Dollars for the
Fund to defray expenses of Board:	:	month of.....
during month of.....1888.	:	
	:	For the Treasurer.
	:	GEO. HOMAN, Sec'y.
	:	\$5

ABSTRACT OF PROCEEDINGS OF BOARD.

ANNUAL MEETING.

JEFFERSON CITY, January 30, 1887.

The Board convened in annual session at 2:30 p. m. in the Executive office, Capitol building.

Present—Wm. Gentry, J. B. Prather, A. Merrell, J. D. Griffith, G. A. Goben and Geo. Homan.

Absent—G. M. Cox.

The meeting was called to order by the President, and the minutes of the last quarterly meeting were read and approved.

The report of the Secretary was then presented and read, as follows:

The condition of general health in this State for the quarter ending on the 2d inst., so far as indicated by information received, shows no decided variation from that of the preceding quarter.

At the October quarterly meeting, attention was called to the prevalence of diphtheria in the city of St. Louis, and which reached epidemic proportions in certain localities there during the fall season—the influences which determined its occurrence and severity in those particular localities not being fully known or understood, although deserving of the most searching investigation.

The maximum intensity of the epidemic appears to have been reached several weeks ago, either from comparative exhaustion of material susceptible to the poison, or as a result of measures adopted to control its spread.

Those measures were in the direction of securing isolation of the sick, the placarding of houses, privacy of funerals, with disinfection of dwellings and the general removal as far as possible of insanitary conditions in the localities affected.

The number of cases of this disease occurring during last year in St. Louis is given as 2,826, the deaths numbering 719.

The disease has been present in marked form in other cities and towns in the Ohio and Mississippi valleys, the seasonal tendency being in the direction of epidemicity.

Scarlet fever has become more pronounced in its appearance and tendency in St. Louis, in other parts of the State and elsewhere in the West, although epidemic proportions have not yet been reached.

The outbreak of cholera in the Argentine republic last month gives to the people of this State a fresh interest in that disease, as routes of travel between South America and our gulf coast are direct and the time of passage between them relatively short.

The health authorities of Texas have already established quarantine against vessels and passengers coming from the infected localities and ports. Should the danger increase with the approach of warmer weather, as at present circumstanced, our main source of reliance for protection would be in an efficient quarantine maintained by all the seaboard States; but the test of experience may show this hope and reliance to be fallacious, in which event every interior State would be thrown upon its own resources and compelled to look to and provide its own defenses. How this could be best done for Missouri is a subject worthy of consideration by this Board at the present time.

Typhoid fever has not been absent from certain localities of this State during the last quarter. As typhoid fever is of all diseases one of the most preventable, its general prevalence in a given community is a sanitary reproach to the inhabitants, as it is almost invariably due to faulty conditions of dwellings, out-houses or other domestic surroundings.

Small-pox is reported as present in New York and Texas, and the winter season is most favorable to its spread. The immunity to the disease conferred by protective vaccination should not be lost sight of by the people of our State.

DISEASES OF ANIMALS—QUARANTINE.

No reports have been received indicating the presence of serious communicable diseases among the live stock of this State during the last quarter.

In regard to the matter of the passage through the State by rail of a small lot of cattle from a locality in Illinois which was included within the district prescribed by Governor Marmaduke's quarantine proclamation, upon due consideration by the special committee charged with that duty, permission to do so was granted the owner upon his submitting satisfactory evidence that his herd was not diseased and had not been exposed to any infectious or pestilential disease for the ninety days next preceeding the date of official certificate presented—a condition of the permission granted being that the shipment of stock was to pass through the State without unloading.

An application is now pending for permission to bring into the State for breeding purposes a single animal to be placed on a farm in Chariton county.

The quarantine regulations against places and localities infected with contagious pleuro-pneumonia enumerated in the resolution of the Board passed October 2 last, and established by proclamation of the Governor two days later, expired by limitation on the 2d inst.

So far as known, the prohibition has been duly observed; the question now arises whether it shall be renewed and continued against those places where the disease named is still known to be present.

In this connection your attention is respectfully directed to the communication from the Commissioner of Agriculture to the Governor of Illinois, dated January 2, 1887, in which the charge is boldly made that the policy and measures pursued by the Live-stock Commission of that State in dealing with the infection in Chicago are trifling, dilatory, and utterly inefficient so far as protection against pleuro-pneumonia to the animal industry of the country at large is concerned.

Although the law requires that county clerks shall make annual reports of births and deaths to the State Board of Health by Jan. 10, no such reports have been received from any county this year.

The committee charged at the last meeting with the preparation of the annual report of the Board duly performed the work assigned them, and placed the report, which covered the period from July 2, 1885, to Dec. 31, 1886, inclusive, in the hands of the Governor on the 1st inst., as required by section 17 of the Board of Health act.

Bids were taken in St. Louis for printing the report, and the work was done at what is believed to be a reasonable price. Various details in regard to the work are herewith submitted. These, as well as other matters referred to the Executive committee at the last meeting, await your approval.

Proposed amendments to existing laws in regard to domestic food supplies will be found in the report, as well as the present law in regard to the manufacture of oleomargarine.

As this article has a well-established definite value as an article of food, and inasmuch as the Federal statute is designed in its enforcement to protect the public against frauds in this respect, it is suggested that this Board may with propriety recommend to the Legislature that the State law be so amended as to permit of its being offered for sale under its true name, and not as a counterfeit.

REGISTRATION.

During the quarter twenty-two graduated physicians and nineteen graduated midwives were registered.

The applications for registration of four practitioners and three midwives were declined according to the rule of the Board, all being exempt under the law.

It is suggested as a subject worthy of consideration whether a uniform and definite standard as regards length of terms, branches of instruction, number of teachers, etc., for the better regulation of schools of midwifery in this State, should not be created by the Board, as there is reason to believe that the quality of instruction imparted at some of these institutions is susceptible of great improvement; and if action in this respect is taken, it should be done before the spring sessions open, in order that the schools concerned may have timely notice.

An outline of the conditions that should be observed by such schools in their educational course for their improvement as institutions of learning is herewith presented.

The movement on the part of the medical profession in this State in regard to anatomical material, and at the same time to more securely guard communities against the crime of grave-robbing, is also suggested for consideration at this time.

I present herewith for your consideration, and such action as may be deemed wise and necessary, a number of letters and other papers in cases arising under the Practice act.

On motion, the report was received, ordered made a part of the record, and the various suggestions contained in it were then separately considered.

In regard to cholera, it was decided that no efficient action could be taken until the disposition of the General Assembly toward the Board was more fully known.

It was decided to take no action toward renewing the quarantine against pleuro-pneumonia in Chicago, but to continue to watch developments in that quarter.

A code of requirements for the guidance and regulation of schools of midwifery in the State was submitted and agreed upon, as follows :

Conditions of Admission to Lecture Courses :

1. (a) Credible certificate of good moral character.

(b) Proven ability to intelligently speak and write the English language evidenced either by the diploma of a good literary or high school, or a first grade teacher's certificate, or by a thorough preliminary examination in the elementary English branches.

Subjects to be included in the course of instruction—

2. (a) Anatomy, embracing a general knowledge of the bony skeleton and the special anatomy of the female pelvis, genitalia, and mammary region.

(b) Physiology of the pregnant state, and of the parts and organs especially involved in child-bearing.

(c) Obstetrics.

(d) The elementary principles of gynecology.

(e) Hygiene of the puerperal state and of the lying-in chamber.

Length of regular or graduating course—

3. (a) The time occupied in the regular sessions from which students are graduated shall be not less than four months or sixteen weeks each. Two full courses of lecture, which shall be separated by a period of not less than three months, shall be required for graduation in the art of midwifery.

Attendance and examination or quizzes—

4. (a) Regular attendance during the entire lecture courses shall be required, allowance being made only for absences occasioned by the student's sickness, such absences not to exceed twenty per centum of the course.

(b) Regular examinations or quizzes to be made by each lecturer or professor at least twice each week.

(c) Final examinations on all branches to be conducted, when practicable, by competent examiners other than the professors in each branch.

4. The school must show that it has a sufficient and competent corps of instructors, all of whom shall be licentiates of this Board.

The code was referred to the Executive committee, to be promulgated at a suitable time.

The following preamble and resolution was unanimously passed :

WHEREAS, The provisions of the act to regulate the practice of medicine in Missouri require the State Board of Health in its enforcement to inquire into and ascertain the good standing or otherwise of medical colleges ; and

WHEREAS, The schedule of minimum requirements adopted by this Board for the determination of such standing enjoins upon such schools dissections and the teaching of practical anatomy as a fundamental branch of medical study ; therefore be it

Resolved, That this Board approve the movement on the part of the medical profession and schools to secure better facilities for anatomical study, and respectfully recommend the enactment into law of the bill for that purpose now pending before the General Assembly.

Dr. Homan offered the following:

WHEREAS, The substance known as oleomargarine, and similar compounds in imitation of butter, when properly made of good materials, have a definite food value in domestic use; and

WHEREAS, The present State law forbids, under severe penalties, both the manufacture and sale of such compounds, while the Federal law permits its sale under such restrictions as to stamping and inspection as would prevent its being sold as genuine butter; therefore be it

Resolved, That the State Board of Health respectfully recommend to the General Assembly that the present statute in this respect be repealed, or made to harmonize with the Federal law in its operation.

Carried.

The action of the Special Committee on Live Stock for the period subsequent to the last meeting was, on motion, approved.

The report of the Executive committee, in regard to the preparation and publication of the annual report in its various details and recommendations, was also approved.

The financial statement of the Treasurer from July 2, 1883, to January 1, 1887, was presented by Dr. Griffith, and was referred to the Executive committee. After examination, the committee reported the accounts properly audited—the report being received and committee discharged.

Election of officers for the ensuing year being in order, Major Gentry was chosen to succeed himself as President; Dr. Merrell was re-elected Vice-President; Dr. Homan was re-elected Secretary, and Dr. Griffith succeeded himself as Treasurer.

The consideration of questions and hearing of argument by a party in interest in a case arising under the Practice act consumed the time until 6:30 p. m., when the Governor referred to the Board for information a communication from the Secretary of State, at Washington, transmitting a letter from the American consul to the Orange Free state, South Africa, with a certified copy of what purported to be a diploma granted to George Robertson Howard by the "American Anthropological University of St. Louis, Mo.," dated April 24, 1886. After due investigation, on motion, the Governor was respectfully informed that the institution named was fraudulent in character, and has for some time been engaged in the manufacture and sale of bogus diplomas.

On motion, a recess of one hour was taken.

The session was resumed at 7:30 p. m. at the Madison house, the same members present.

Consideration of matters relating to medical colleges pending when the recess was taken was resumed, and a large quantity of business of

this nature and of applications for registration under the Practice act was variously disposed of, engaging the attention of the Board until 10:30 p. m.

Miscellaneous business being taken up, a letter was read referring to an alleged outbreak of small-pox at Gray's Summit. The Secretary was ordered to investigate the matter fully and report the result.

A letter from Dr. Conn, Secretary of the National Conference of State Boards of Health, was read, acknowledging receipt of the assessment of the Board.

The committee to whom were referred the papers of an applicant admitted to examination during the session for license to practice, reported that the required percentage of correct answers had not been attained, and recommended that license be accordingly withheld. The report was on motion adopted, and the Secretary directed to notify the applicant of the action taken.

Having finished consideration of the business brought before them at 11:30 o'clock p. m., the Board on motion adjourned.

SEMI-ANNUAL MEETING.

ST. LOUIS, July 23, 1887.

The Board convened in semi-annual session at 10:30 a. m. at the Laclede hotel.

Present, Wm. Gentry, J. B. Prather, J. D. Griffith, G. A. Goben, and Geo. Homan.

Absent, A. Merrell and G. M. Cox.

The President called the meeting to order. The minutes of the annual meeting were then read and adopted.

Dr. Cox appeared and took his seat, followed a few minutes later by Dr. Merrell.

The Secretary presented a statement showing the number of registrations under the Medical Practice act for six months, as follows:

Total No. registered from January 2, 1887, to July 2, 1887:

Physicians.....	177
Midwives.....	25
Total amount of fees collected.....	\$202

Total registration for the two years ending July 2, 1887:

Physicians.....	482
Midwives.....	94

Total fees collected in two years as above:

From physicians.....	\$454
From midwives.....	86 \$540

On motion, the statement was received and ordered filed.

A communication from the Private Secretary of the Governor was read, notifying those members of the Board whose terms of office expired on the 2d instant, that under the law they were required to serve until their successors were appointed and qualified.

A letter from the State Auditor was also read informing the Board that the amount appropriated to reimburse the members for their traveling expenses and their hotel bills was ready to be paid out. The President was authorized to draw a requisition for the same, and remit to each member the amount due him according to the statement of the Treasurer.

Consideration of the question whether the members should tender their resignation to the Governor in a body then engaged the attention of the Board, the circumstance appearing to make this step necessary being the fact that the General Assembly, during the past winter and spring, had failed to make any provision whatever for its support.

In the course of the discussion Dr. Homan stated that the expenses of the Secretary's office, managed with the utmost economy, considerably exceeded the small receipts from fees collected, and that in justice to himself he could not continue to meet this demand, but would contribute his share and continue the work, provided the other members would help bear the load.

The President expressed regret at the seeming necessity of bringing to a close the work of the Board in which he was deeply interested, but could at present see no way out of the difficulty.

Pending consideration of the matter a recess was taken to 1:30 p. m.

The session being resumed, all members present, the question concerning the future of the Board was again taken up and fully discussed in all its relations. Dr. Merrell, being requested to formulate the views expressed, submitted the following memorandum :

To his Excellency, JOHN S. MARMADUKE, *Governor of Missouri* :

The undersigned, members of the State Board of Health, respectfully call your attention to the following points indicating the present status of our Board :

At the time you assumed the duties of Governor the Board was without financial support for the continuance of its duties, but at the suggestion and recommendation of the medical profession of the State and of others who thought the Board of Health a needed protection to important interests of the commonwealth, you filled the vacancies then existing and requested the Board to fulfill its duties and look to the Legislature at its next meeting to provide the necessary funds for expenses.

During a period of two years ending July 2nd, 1887, the Board has performed its duties and paid its own expenses. The Legislature failed to make any appropriation for the Board, either at its regular or its special session, except to return to

the members a portion of their traveling and hotel expenses. No provision has been made to reimburse the Secretary for his office expenses, or to pay him the salary provided for by law and voted to him by the Board.

The Board have now reached a point where they think no work useful to the State can be performed unless at great financial loss to the members. Our experience satisfies us that this failure on the part of the Legislature leaves the State in a defenseless condition from a sanitary stand-point, and from its liability to the depredations of conscienceless scoundrels, who impose for profit upon the fears or the credulity of our people. It also jeopardizes its live-stock interests from failure of proper quarantine.

We gratefully recognize your continued sympathy and effort in our behalf, and sincerely hope that some means may be found to prevent the act creating the State Board of Health and the Medical Practice act from becoming dead letters.

We feel that we have done all that can be expected of us either as citizens or members of the Board in the embarrassing position in which we have been placed, and therefore respectfully tender our resignations.

After further deliberation the memorandum was adopted and signed by all present except Dr. Homan, who withheld his signature in the belief that as his term as a member had expired on the 2d inst., he therefore had nothing to resign; but who expressed his willingness to abide by the decision of those members whose terms had not expired in regard to the future of the Board.

The Secretary was instructed to prepare a copy of the paper and forward it at an early date to the President, who promised to present it in person to the Governor at a suitable time should such a course seem best.

It was directed also that a statement by the Treasurer of the expenses incurred by the Secretary in performing the duties of his office for the last two years, together with an account of salary due the latter at the rate fixed by the Board under section 14 of the Board of Health act for the same period, be presented with the memorandum, and a copy of the same filed with the State Auditor.

An applicant from Worth county was introduced, who desired admittance to an examination by the Board for license to practice medicine. It was found, however, that the applicant was ineligible under the rules of the Board, and the application was therefore declined.

Consideration of matters under the Practice act was then proceeded with, and a number of cases considered and disposed of.

It was decided in several instances to refuse license for unprofessional and dishonorable conduct, after an opportunity for a hearing had been given the parties concerned.

After disposing of the routine matters presented, in view of the probable dissolution of the Board, the President took occasion to express his thanks for the honors and courtesies shown him, his growing

appreciation of the work and necessity for such a body, and the regret he felt at parting with his colleagues.

On motion of Dr. Homan, Dr. Merrell took the chair and a vote of thanks was unanimously tendered the President for his fidelity to the interests of the Board and his conscientious performance of official duties.

Resolutions of thanks were tendered the other officers of the Board; also, a resolution offered by Dr. Griffith pledging the members in case the Board was continued to work actively in the interest of the public health with the members at the next session of the General Assembly, in order that the Board may receive proper recognition and support from that body.

Adjourned.

ANNUAL MEETING.

JEFFERSON CITY, Jan. 30, 1888.

In response to the call of the President for the Board to convene on this date and at this place in annual session, and it being found that Wm. Gentry and J. D. Griffith were the only members present, the meeting therefore was declared adjourned to the 27th prox. at the Laeledge hotel in St. Louis.

ADJOURNED ANNUAL MEETING.

ST. LOUIS, February 27, 1888.

Pursuant to adjournment, the Board convened in annual session at 10 a. m. at the Laeledge hotel.

Present—Wm. Gentry, J. D. Griffith, G. A. Goben, G. M. Cox and Geo. Homan.

Absent—A. Merrell and J. B. Prather.

The President called the meeting to order, and the minutes of the last meeting were then read and approved.

Drs. Griffith and Homan formally submitted to the chair their commissions for reappointment as members of the Board from the Governor for terms of office expiring July 2, 1894, with oath of office duly executed and indorsed on same.

The annual election of officers being declared in order, the present incumbents were duly chosen to succeed themselves.

On motion of Dr. Griffith, it was unanimously decided that the members should each contribute a certain amount monthly to be expended in meeting the current expenses of the work of the Secretary, the latter to give special receipts for the contributed amounts, specifying the conditions and object of the contribution, the assessment to be continued until the end of the present year.

On motion, the Secretary was instructed to prepare and present at the meeting of the State Medical association in April an account of what had been done and what had not been done by this Board, and appeal to that body for active support both as individuals and as an organization.

After the transaction of other business, a recess was taken at 12:30 for one hour.

The session was resumed at the appointed time ; present, Messrs. Gentry, Goben, Cox and Homan.

A number of cases under the Practice act were taken up and considered, a personal hearing being granted to several parties concerned.

At 3:00 o'clock Dr. Merrell appeared and took his seat.

The hearing and determination of cases involving applications for registration and the standing of medical colleges being finally concluded, the Secretary submitted a mass of correspondence and other papers relating to the outbreak of small-pox in Schuyler county in January, together with a statement of the steps taken by him to meet the danger, and an account of the progress of the disease to date so far as could be ascertained. A report by Dr. Goben on the same subject was also read.

After a full consideration of the statements and facts presented, the action of the Secretary was approved, and a resolution was passed urging the Governor again to issue his proclamation establishing the quarantine rules and regulations adopted by the Board on the 16th instant for the control and suppression of the small-pox epidemic, and for the protection of exposed communities.

Adjourned.

(A detailed history of this epidemic, as far as it could be gathered, together with copies of the correspondence and official papers, will be found elsewhere in this report.)

SPECIAL MEETING.

KANSAS CITY, April 13, 1888.

The Board met pursuant to notice in special session at 4 p. m. in the Music hall.

Present—Wm. Gentry, J. D. Griffith, G. A. Goben and Geo. Homan.

Absent—J. B. Prather, G. M. Cox and Albert Merrell.

The meeting was called to order by the President. The reading of the minutes of the last meeting was dispensed with.

By invitation, Dr. Paquin, State Veterinarian, appeared and submitted for approval a plan for the production of a supply of vaccine matter at the experimental laboratory at stated intervals of about every three months, instead of attempting as at present to afford a continuous supply. After hearing the details of the scheme, it was voted that the Board approve the plan as presented.

Dr. Homan submitted for approval draft of resolutions drawn up and recommended for adoption by the State Medical association, now in session, as follows:

WHEREAS, The experience of the past has shown that existing means relied upon for the protection of the people of the United States against the introduction of dangerous epidemic diseases from abroad are entirely inadequate to accomplish the desired object; and

WHEREAS, It being highly desirable in order to reasonably insure such protection that the measures employed shall be uniformly and systematically applied; therefore be it

Resolved, 1st, That in the opinion of this Association external quarantine measures should be under control and direction of Federal authority to afford the highest degree of protection to the people of this country.

2nd, That this Association favor congressional action looking to this end, as in their judgment there is present urgency for such legislation.

3rd, That copies of these resolutions be promptly forwarded by the Secretary to the members and Senators of this State in Congress.

On motion of Dr. Griffith, the resolutions were approved and recommended for adoption by the Association.

The following preamble and resolutions were communicated to the Board and read by the Secretary, having been adopted unanimously by the State Medical association as a portion of the report of a committee of which Dr. H. C. Dalton was chairman:

WHEREAS, Recognizing the importance and value to the people of this State of a body clothed with official authority and provided with adequate financial means to enforce existing laws for the protection of the public against disease, the prevention of epidemics, and the furtherance of all measures designed to secure the sanitary welfare of the people of this State; therefore,

Resolved, 1st, That reposing confidence in the wisdom, patriotism and ability of the State Board of Health, as displayed in the midst of adverse circumstances, this Association approve the course and conduct of the Board, and pledge to its support in its work the influence and authority of this body.

2nd, That the members of this Association pledge themselves to actively exert their influence in their respective localities during the coming year in favor of legislative action in support of the Board, and to enlighten their representatives in the General Assembly regarding the wishes of the Association in this respect.

3rd, That a special committee of three members on sanitary affairs be appointed by the President, with power to sit during the ensuing year and advise with the Board in all matters concerning needed legislation for the more perfect protection of the public against disease.

The thanks of the Board were returned for the action taken, and the communication was ordered filed.

After the transaction of other business, the Board, on motion, adjourned.

SEMI-ANNUAL MEETING.

ST. LOUIS, July 10, 1888.

The Board convened in semi-annual session at 10 a. m. at the Laclede hotel.

Present—Wm. Gentry, J. D. Griffith, G. A. Goben, A. Merrell and Geo. Homan.

Absent—J. B. Prather and G. M. Cox.

The meeting was called to order by the President, and the minutes of the annual meeting and of the special meeting in April were read and adopted.

J. H. White, of Worth county, and C. G. Loring, of the city of St. Louis, presented themselves as candidates for examination for license to practice medicine. Upon inspection and approval of the credentials presented, on motion they were admitted to written examination, the fee for such examination being five dollars, returnable if the applicant failed to pass.

The report of the Secretary was then read, as follows:

Concerning the condition of public health in this State since the last regular meeting, and especially as regards dangerous diseases, I herewith submit for your information additional correspondence relating to the outbreak of small-pox last winter in Schuyler and Adair counties, the facts contained in which were mainly elicited through a request addressed to Dr. J. W. Jackson, Chief Surgeon of the Wabash railway in this State, upon whose suggestion the railway officials in the territory affected took up the investigation as to the origin of the epidemic, tracing it as closely as was possible, the result being that the weight of evidence tends to sup-

port the view of the subject advanced by Dr. Goben during the existence of the outbreak: namely, that it was started by the contact of a susceptible individual with an infected person while traveling on a railway car.

The thanks of the Board are due to the medical staff and other officials of the Wabash road for the interest in this matter manifested by them—effort on my part by correspondence with physicians and other persons concerned, in the affected localities, having been almost fruitless so far as collecting data regarding the disease was concerned.

During the spring months several centers of small-pox contagion were developed in this city, the number of cases occurring last month and sent to hospital being 17. The disease has been confined chiefly, if not entirely, to the colored population, and the probabilities are that other cases will occur, as it is known that a considerable dispersion from this city of infected individuals or those who had been exposed to the disease has taken place, the Mississippi river being the principal direction taken by them.

A localized outbreak of small-pox occurred during the spring in the city of Moberly, in Randolph county, this State.

Dr. J. Grindon, who is in charge of the hospital where the sick are confined, gives the following account of the epidemic under date of the 19th ultimo:

"Early in March there came to this town direct from Switzerland, a poor emigrant named Julius Joray, who had a little girl, who, within five weeks after his arrival, fell sick with the small-pox. This was the first case of the disease occurring within the town for several years. No physician was called and the case was kept hidden—not so closely, however, but that a number of persons were admitted for various reasons to the house, nine of whom received the contagion at first hand. From these nine a third generation appeared, as follows: Two cases gave rise to one other apiece; one, to two cases; one, to three more; one, to four more, and one to seven more. There was besides a case of unknown origin which left a solitary descendant.

"Energetic and timely measures jugulated all these *foci* of infection but one case belonging to the third generation, which was successfully kept hidden until it (the only case to continue the history of the epidemic) gave rise to five more—these were also kept hidden until the 20th day of May, the day I took charge of the hospital, when they were quarantined. Since then no new sources of contagion have been active in the community. There have, however, developed nine cases, constituting the fifth and last generation, from the five secreted cases mentioned above.

"There are no cases here now beyond those in the hospital, as follows:

	Sick.	Convalescent.	Total.
"White	2	6	8
"Colored....	3	12	15
	<hr/> 5	<hr/> 18	<hr/> 23
"Died.....			2
"Recovered and left hospital.....			19

"Total number affected from beginning..... 44"

The suggested view of the importation of the disease from abroad would appear to be scarcely tenable when the fact of the delay in the development of the disease after the arrival of the immigrants is considered. A more reasonable supposition to me would be to regard this outbreak as a direct sequel to the Greentop epidemic, Moberly being in close and direct communication by rail with that locality, and being in fact the local center in that part of the State for the Wabash railway.

Reports received since the last meeting from the health authorities of Minnesota, Illinois, Kansas, Tennessee, Pennsylvania, Maine and Quebec, Canada, show the existence of more or less numerous cases of small-pox in these several States, and suggesting the probability that the disease will assume a still wider sway the coming winter.

In this connection I desire to mention that last month I addressed inquiries to the clerk of every county in this State, asking to be informed whether there were county boards of health in existence, and if so, when they were formed and under what law, whether there were health officers of counties, the compensation provided, and whether there were any town or city boards; also, the sentiment of the people regarding such organization and officials, etc.

I have received replies from more than one-half of the counties, and from this information it does not appear that there is a county board of health in existence, and in only about two is there a health officer, who, in fact, seems to be simply county physician, charged with the medical care of the sick, poor and paupers, and not in a real sense a public health official. Moreover, it would appear that there are scarcely more than a dozen local health organizations in existence in this State, including those of the largest cities, and it is to be feared that the existence of some of these is more nominal than real, with powers and duties uncertain and ill-defined. I submit the facts collected regarding this matter for your information without comment, other than it is to be hoped that there is no other State in the Union, of nearly equal size, population and material resources, that can exhibit such a condition of affairs.

In order that this condition may be remedied so far as proposed legislation may accomplish it, I submit herewith draft of a bill to this end, so that with your approval it may be placed at the disposal of the Legislature next winter.

Copies have been furnished to the members of the special committee on sanitary legislation appointed by the State Medical association in April, and by whose members the proposed law is favored, as I understand.

In regard to the registration of physicians and the operation of the Medical Practice act during the six months ended the 2d instant, I have to report that a total of 209 graduated physicians have received license to practice; two licenses were granted to non-graduates who were exempt by reason of the five years clause whose applications remained unhonored by the former Board.

A total of twenty-four applications for registration by physicians were declined—in a number of instances for the reason that the credentials upon which the claim was based were found, upon investigation, to be fraudulent.

Nineteen midwives received license to pursue their calling, and three were refused by reason of lack of educational qualifications.

On motion, the report was received and adopted—discussion of the several subjects presented being temporarily deferred.

Dr. Griffith was appointed by the Chair a committee to examine the accounts and vouchers submitted by the Secretary for the last four months. After due examination the committee reported the same to be correct, the report being adopted and the committee discharged.

Cases arising under the Practice act were then considered, and engaged the attention of the Board until 1 p. m., when a recess for one hour was taken.

Consideration of pending business relating to registration was resumed at 2 o'clock, and was only disposed of after several hours' labor.

The report of the Secretary was then taken up and discussed. A draft of a bill to create and establish local boards of health throughout the State, prepared by him, was submitted and considered section by section, and similarly adopted. It was then approved as a whole, and it was voted to recommend it for passage at the next session of the General Assembly.

Amendments to the present Board of Health act, designed to increase the efficiency of the Board and more fully promote public health, were similarly considered, and the law, as amended, shared in the foregoing recommendation.

The examinations of the candidates for license not having been completed, the Secretary was instructed to receive their papers and forward them to the several members of the Board for examination and rating.

Adjourned.

It being subsequently determined that the applicants, White and Loring, had successfully passed the required examinations, certificates entitling to practice thereon were accordingly issued to them on the 19th July.

SPECIAL MEETING.

ST. LOUIS, December 4, 1888.

The Board met in special session at 4 p. m. at the Lindell hotel.

Present—Wm. Gentry, J. D. Griffith, G. A. Goben, A. Merrell, J. B. Prather and Geo. Homan.

The President called the meeting to order; the reading of the minutes of the previous meeting was, on motion, omitted.

The Secretary submitted an outline of the general scope and features of the report of the Board for 1888. The plan as presented was approved, the work to be completed by the Executive committee and transmitted to the Governor as early in the present month as possible.

The action of the Executive committee in extending invitations to local health officials to meet in St. Louis this date, for conference on sanitary matters, was, on motion, approved.

On motion of Dr. Griffith, the Secretary was instructed to have prepared for publication, and have printed as soon as possible, the

proceedings of the meeting of local officials of the State, held this day by invitation of the Board—copies of the same to be sent to the Governor, the members of the General Assembly, and to physicians and sanitarians throughout the State.

Dr. Homan reported that he had attended the annual meeting of the American Public Health association at Milwaukee, Wisconsin, last month, as the representative of the Board, and made a statement regarding the business of the meeting.

On motion, the report was received and ordered made a part of the supplement to the annual report.

The Treasurer reminded the members of the necessity of sending in statements of the amounts of individual expenditures incurred by them during the years 1887 and 1888, in attending the meetings of the Board, and in the performance of their official duties under the law, the accounts to be included in the annual report to the Governor.

After the transaction of other business, the Board adjourned to meet at Jefferson City in January, the date to be fixed by the Executive committee.

AN EXHIBIT,

Comprising reports from the clerk of the county court of every county in Missouri, showing the number, location, etc., of local boards of health, and the unprotected condition of a large portion of the State against epidemic diseases, through absence of any sanitary organization.

In order to ascertain as nearly as possible the extent to which local sanitary organizations exist and are maintained in the State, a copy of the following circular was sent to the clerk of the county court of every county in the State, during the month of July, 1888. With few exceptions the returns were promptly made, and the information thus collected is probably the most complete of its kind within reach, and furnishes a fair index of the needs of the State in this direction:

STATE BOARD OF HEALTH OF MISSOURI, }
ST. LOUIS, ———, 1888. }

To ———, Esq, Clerk County Court ——— county, ——— Mo.:

DEAR SIR: Will you kindly inform me to the extent of your ability in regard to the points enumerated below? and greatly oblige by an early reply.

Very respectfully yours,

GEO. HOMAN, Secretary.

1. Is there a county board of health now in existence in your county? If yes, when was it organized and under what law?
2. Who compose the board at present, and who are its officers?
3. Is there a health officer for your county? If so, please give his name.
4. Are there any subordinate or auxiliary boards of health in your county, as city, town or township boards?
5. What compensation, if any, is allowed members of the county board of health and health officer, if such officials exist in your county, and how is payment of such provided for?
- 6 (a). What is the sentiment of your people in regard to a county board of health? If one now exists, is public opinion favorable to its continued existence with necessary financial support?
- 6 (b). If none exists, is public opinion favorable to the organization and maintenance of such a body?

(Signed) _____

Condensing the information supplied in reply to question number six, especially the concluding inquiry whether public opinion is favorable to the organization and maintenance of county boards of health, the clerks of Greene, Knox, Lawrence, Livingston, Maries, Ripley, St. Louis and Schuyler counties gave an unqualified "Yes;" while an unqualified "No" came from DeKalb, Dunklin, Laclede, Lincoln, Pulaski, Randolph, Wright and Crawford in answer to the same question.

On the same point a qualified "Yes" came from Audrain, Grundy, Holt, Marion, St. Clair, Sullivan, Taney and Texas counties; and a qualified "No" from the clerks of Andrew, Barry, Boone, Carter, Cass, Daviess, Douglas, Miller, Mississippi, Monroe, Morgan, Oregon, Osage, Shelby, Washington and Wayne.

In many counties the clerks were unable to say what the state of public opinion was on this question, the list being as follows: Adair, Atchison, Barton, Bates, Bollinger, Buchanan, Caldwell, Callaway, Camden, Cedar, Chariton, Christian, Clinton, Cole, Cooper, Dallas, Dent, Franklin, Harrison, Henry, Hickory, Howard, Howell, Jackson, Jefferson, McDonald, Macon, Mercer, New Madrid, Newton, Nodaway, Ozark, Pemiscot, Perry, Pettis, Pike, Platte, Polk, Putnam, Ralls, Ray, Reynolds, St. Charles, St. Francois, Ste Genevieve, Saline, Scotland, Scott, Shannon, Stoddard, Vernon and Webster.

The clerks of Carroll, Dade, Gentry, Jasper, Johnson, Lafayette, Moniteau, Montgomery, Phelps, Stone, Warren and Worth made no attempt to answer this question one way or another.

A summary of the returns made shows that there are county health officers in only six counties, namely, St. Charles, Clay, Pettis, Moniteau, Buchanan and Schuyler, and in two of these, Pettis and Schuyler, there are in addition county boards of health. It appears also that local boards of health exist in the cities of Sedalia, St. Charles, Jefferson

City, Cape Girardeau, Warsaw, Washington, Kirksville, Fulton, Osceola, Moberly, Hannibal, Carthage, Bethany, Neosho, Chillicothe, Oregon, Lancaster, Edina, Shelbina, and, probably, Rolla.

All the health officers of counties were addressed to the following effect :

ST. LOUIS. July 24, 1888.

DEAR SIR—Being advised that you hold the position of health officer for your county, I would respectfully ask information on the following points, to wit:

- (1) By whom is the appointment made, and when was the office first created?
- (2) Under what law does the appointing power act in this respect, and what is the term of office of the person so appointed?
- (3) What are the powers and duties of health officer as understood by you, or as laid down in the rules and regulations of the appointing power?
- (4) Are such rules and regulations printed, and is the health officer required to make sanitary investigation and present reports on public health matters at regular intervals?

An early reply to the foregoing questions would be greatly appreciated.

Very respectfully yours,

GEORGE HOMAN, Secretary.

Only one reply was received, from Dr. Trader of Pettis, who stated that he was appointed health officer in 1885, as one of a board of health, by the county court, and under the general law governing the State Board of Health, he making annual report to the county court at the end of the year.

A copy of the following letter was sent to the mayor of each of the cities above mentioned :

STATE BOARD OF HEALTH OF MISSOURI, SECRETARY'S OFFICE, }
ST. LOUIS, July 23, 1888. }

DEAR SIR—Having been informed by the clerk of the county court of your county of the existence of a board of health in your city, will you kindly give the names of members and officers of such board, the length of time it has been in existence, the law under which it was organized, its powers and duties under such law, and whether it is now and has always been actively engaged in the work of preventing disease and promoting health among the people of your city?

If the board has made any reports, or has issued any printed rules and regulations to promote sanitary work among your people, I would esteem it a favor to receive a copy from you.

Very respectfully yours,

GEO. HOMAN, Secretary.

Replies were received from the eight first named cities to the effect that the boards were organized under the general corporate powers of cities, and representing these bodies to be in a fairly efficient state of organization.

The exhibit shows most clearly how weak the State is in sanitary organization and defense as compared with other States of nearly equal size and population.

Boards of health should be formed in every county and town where none now exist, and should be in readiness to work the moment danger to public health from any source is feared. They should be at work whether an epidemic threatens or not, as thorough sanitation is the best safeguard against the more commonly fatal diseases. There is no law compelling the formation of such bodies, but the omission should be supplied as soon as possible, as there are probably not fewer than eighty counties in the State in which such a being as a health official, either of county, city or town, is entirely unknown. Some counties and towns thus situated seem inclined to pride themselves on their healthfulness, when, if such is the fact, it can only be demonstrated by an accurate return of all the deaths, with their causes. Probably not less than 30,000 deaths occur yearly in Missouri, and not more than one-fourth of them are reported or the causes assigned, so that it can never be truly known whether the State is healthy or not until improvement is made in its sanitary organization.

Adair county—S. S. McLaughlin, Clerk.

1. No. 2. 3. No. 4. There is a city board of health in Kirksville; Dr. G. A. Goben and Dr. F. A. Grove, health officers. 5. None. 6. (b) Never heard the matter discussed.

Andrew county—Eli Beagler, Clerk.

1. No. 2. 3. No. 4. No. 5. None. 6. (b) From what information I can get from the best physicians in the county, it is not favorable.

Atchison county—J. H. Filson, Clerk.

1. There is none. 2. 3. None. 4. No. 5. 6. (a) Have not heard the subject mentioned. (b) Same answer as above.

Audrain county—J. V. Williams, Clerk.

1. There is no board of health in our county. 2. 3. If there is an officer of the kind I never heard of it. 4. None. 5. 6. (b) Upon inquiry I believe our county and city (Mexico) would favor its establishment and give it financial aid.

Barry county—M. L. Abernathy, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (a) None—No. (b) Not at this time.

Barton county—J. E. Rundell, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (a) Have heard none expressed. (b) Have heard no expression on the subject.

Bates county—T. L. Harper, Clerk.

1. No. 2. 3. No. 4. None. 5. 6. Don't know.

Benton county—A. S. McGowan, Clerk.

1. No. 2. Have none. 3. No. 4. Have a town board at Warsaw. 5. None. 6. (b) I believe it would be.

Bollinger county—J. M. Snider, Clerk.

1. No. 2. 3. 4. 5. 6. (b) I have not heard the question discussed; there has been no interest taken in that direction.

Boone county—W. W. Batterton, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (a) I am not prepared to say.
- (b) Such opinion is rather weak.

Buchanan county—Phil. Rogers, Clerk.

1. No. 2. 3. W. B. Davis. 4. No board. 5. Salary health officer \$1,600 per annum in county warrants. 6. (b) Could not say what are the feelings of the people in regard to the establishment of a county board.

Butler county—W. B. Adams, Clerk.

1. No. 2. 3. No. 4. 5. 6. (b) I rather think so.

Caldwell county—D. P. Stubblefield, Clerk.

1. There was a county board appointed about two years ago, but never organized. 2. None now. 3. No. 4. I think not. 5. 6. (b) Little or nothing said about the matter.

Callaway county—J. D. Henderson, Clerk.

1. We have no board of health in this county. 2. 3. Have none. 4. We have a city board of health (Fulton) composed of the city physician and two members of the city council. 5. 6. (b) Our county is so healthy we have no opinion on the subject.

Camden county—H. George, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (a) None. (b) Have not heard project discussed.

Cape Girardeau county—Wm. Paar, Clerk.

1. None. 2. 3. None. 4. Yes; in Cape Girardeau and Jackson. 5. No compensation is allowed members of board of health except when in service; then per diem is allowed and paid out of general fund. 6. (b) Think public opinion would be favorable; in the cities it is looked on in a matter of fact way, being long in existence in the city of Cape Girardeau.

Carroll county—B. W. Bowdry, Clerk.

1. We had one in 1883, but it is played out now. 2. 3. 4. 5. 6.

Carter county—J. M. McGhee, Clerk.

1. No. 2. 3. 4. 5. 6. (b) I think not.

Cass county—Geo. I. Shepherd, Clerk.

1. None. 2. 3. None. 4. 5. 6. (b) I find a lukewarm feeling in regard to the matter.

Cedar county—Thomas J. Travis, Clerk.

1. There is none. 2. 3. None. 4. None that I know of. 5. 6. (b) I have not heard the matter discussed.

Chariton county—J. A. Lee, Clerk.

1. Have no board. 2. 3. 4. 5. 6. (b) Can't say.

Christian county—J. F. Adams, Clerk.

1. None. 2. 3. None. 4. None. 5. 6. (a) Nothing said regarding it. (b) Can't say—might be.

Clark county—Geo. Rauscher, Clerk.

1. There is none. 2. 3. None. 4. No. 5. 6. (b) I think so.

Clay county—L. W. Burris, Clerk.

1. Was organized soon after the passage of the law; died a natural death in about six months after organization. 2. 3. John H. Rothwell is county physician; his duty is to attend paupers within one mile of court and patients at county farm. 4. No. 5. The county court pays J. H. Rothwell \$250 per year and he furnishes the medicine at his own expense. 6. (b) I think not.

Clinton county—George R. Riley, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) The question has never been agitated in this county, and I do not know what the sentiment would be.

Cole county—A. P. Grimshaw, Clerk.

1. No. 2. 3. 4. City Board of Health (Jefferson City). 5. 6. (b) Have never heard an expression for or against.

Cooper county—E. B. Bunce, Clerk.

1. We have no county board. 2. 3. None. 4. None. 5. 6. (b) Cannot answer, as I have never heard the matter discussed.

Crawford county—H. Ferguson, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (a) None. (b) No.

Dade county—C. Z. Russell, Clerk.

1. There has never been a county board of health. 2. 3. 4. 5. 6.

Dallas county—J. T. Pendleton, Clerk.

1. No. 2. 3. No. 4. None. 5. 6. (b) No opinion; none exists.

Daviess county—S. C. Rowland, Clerk.

1. No. 2. 3. None. 4. No. 5. 6. (b) I think not.

DeKalb county—C. E. Moss, Clerk.

1. None. 2. 3. 4. 5. 6. (a) No. (b) No.

Dent county—George W. Peck, Clerk.

1. No. 2. 3. None. 4. None. 5. 6. (b) I cannot say.

Douglas county—J. M. Curnutt, Clerk.

1. No. 2. ... 3. No. 4. No. 5. 6. (b) I think not.

Dunklin county—D. B. Pankey, Clerk.

1. No. 2. 3. 4. 5. 6. (b) No.

Franklin county—H. Wiesel, Clerk.

1. No. 2. 3. No. 4. City board of health at Washington. 5. 6. (b) Cannot tell; the matter never has been publicly discussed.

Gasconade county—C. Klinge, Clerk.

1. There is none. 2. 3. None. 4. None. 5. 6. (b) I cannot say, but think it unfavorable.

Gentry county—G. T. Patton, Clerk.

1. No. 2. 3. No. 4. No. 5. 6.

Greene county—A. Demuth, Clerk.

1, 2, 3, 4, 5. There is no county or city board of health in Greene county or Springfield. 6. (b) Yes.

Grundy county—R. A. Collier, Clerk.

1. There is not. 2. 3. None. 4. None. 5. 6. (b) I am not sufficiently posted at this time to say whether public opinion is or is not favorable. Dr. Thomas Kimlin thinks it favorable.

Harrison county—W. P. Robinson, Clerk.

1. None. 2. 3. No. 4. City of Bethany has Board of Health. 5. Compensation merely nominal. 6. (b) Have heard nothing said in regard to the matter.

Henry county—B. L. Quarles, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) I have not heard any expression on the subject.

Hickory county—F. M. Wilson, Clerk.

1. No. 2. 3. 4. 5. 6. (b) I cannot tell.

Holt county—Daniel Kunkel, Clerk.

1. No. 2. 3. No. 4. Committee on health in our city (Oregon.) 5. 6. (b) The question has never been agitated and no opinion therefore expressed. Our citizens are in favor of anything most that is for their good. But the health by locality of which we boast naturally causes them to be passive on this question.

Howard county—H. C. Tindall, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) I do not know; the matter has not been discussed.

Howell county—R. S. Hogan, Clerk.

1. There is none. 2. 3. No. 4. No. 5. 6. (b) I am unable to say.

Iron county—W. A. Fletcher, Clerk.

1. We have no county board of health in this county. 2. 3. No. 4. No. 5. 6. (b) I think not.

Jackson county—M. S. Burr, Clerk.

1. There is none. 2. 3. None. 4. None. 5. 6. (a) Do not know. (b) Do not know.

Jasper county—Jesse Rhoads, Clerk.

1. No. 2. 3. No. 4. There is a city board of health in the city of Carthage, composed of the mayor and council and certain physicians appointed by the council. 5. 6.

Jefferson county—W. R. Donnell, Clerk.

1. There is not. 2. 3. There is not. 4. 5. 6. No expressed sentiment in regard to the matter.

Johnson county—J. M. Rice, Clerk.

1. There is no board of health in this county. 2. 3. None. 4. 5. 6.

Knox county—F. M. Miller, Clerk.

1. No. 2. 3. No. 4. The city of Edina has a board of health—Drs. L. S. Brown, president, L. T. Nelson, S. W. Saunders; and Messrs. James E. Adams, secretary, and G. R. Balthrope. 5. None. 6 (b). Yes.

Laclede county—J. H. Wickersham, Clerk.

1. 2. 3. 4. 5. 6 (b) None exists, and there is none wanted.

Lafayette county—W. B. Steele, Clerk.

1. There is no such board in this county. 2. 3. 4. 5. 6.

Lawrence county—J. A. Cochran, Clerk.

1. No. 2. 3. No. 4. None. 5. 6. It would be.

Lewis county—W. G. Watson, Clerk.

1. None. 2. 3. None. 4. None. 5. 6. (b) I think not. .

Lincoln county—J. J. Shaw, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) No.

Linn county—George W. Adams, Clerk.

1. No board. 2. 3. No. 4. No. 5. 6. (b) Don't think the people of this county take kindly to the proposition.

Livingston county—J. P. Sailor, Clerk.

1. None. 2. 3. The city of Chillicothe has a board of health. 5. W. R. Simpson, M. D., president city board of health; \$20 per year. 6 (b) Yes.

McDonald county—J. P. Caldwell, Clerk.

1. There is no county board of health. 2. 3. No. 4. No. 5. 6. (b) There has been no interest taken in the matter. Can't say what the sentiment of the people is. Such an institution has never been agitated.

Macon county—J. B. Goodding, Clerk.

1. No board of health in this county. 2. 3. No. 4. No. 5. 5. (b) I do not know.

Madison county—A. B. Watts, Clerk.

1. None. 2. 3. None. 4. None in city or county. 5. 6. (b) I think public opinion would not favor it.

Maries county—T. J. Ellis, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) Yes.

Marion county—J. W. Proctor, Clerk.

1. No. 2. 3. 4. I think the city of Hannibal has a board of health. 5. 6. The citizens of the county think that each city ought to provide for and maintain a board of health. The law providing for a registration of the births and deaths is almost ignored in our county. It is in fact a dead letter. I would like to see the provisions of the law complied with. The statistical information would be of great importance.

Mercer county—J. M. Alley, Clerk.

1. We have no county board of health. 2. 3. None. 4. None. 5. 6. (b) Could not say.

Miller county—J. M. Allee, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) I think not.

Mississippi county—J. T. Heggie, Clerk.

1. No. 2. 3. County physician, W. F. Grinstead. 4. No. 5. County physician paid regular fees, less 20 per cent. 6. (b) No, I judge not.

Moniteau county—Aug. Seyffert, Clerk.

1. No. 2. 3. The county court appoints one each year for our county, poor farm and insane hospital, now Dr. L. M. Gray. 4. No. 5. Is paid by law for all services rendered; no stipulated price. 6.

Monroe county—James L. Wright, Clerk.

1. No. 2. 3. No. 4. No. 5. 5. (b) Don't think they are, so far as I can learn.

Montgomery county—L. E. Washington, Clerk.

- 1, 2, 3, 4, 5. Nothing of the kind in this county. 6.

Morgan county—J. D. Hubbard, Clerk.

1. No. 2. 3. 4. 5. 6. (b) I think not.

New Madrid county—C. L. Mitchell, Clerk.

1. No such organization. 2. 3. 4. 5. 6. (b) Don't know.

Newton county—P. R. Smith, Clerk.

1. No. 2. 3. No. 4. There is a kind of board of health in Neosho, composed of mayor and one councilman, Dr. A. W. Benton. 5. 6. (a) Nothing said about it. (b) Very little public opinion about the matter; never heard the question discussed—will not probably until some epidemic disease makes its appearance.

Nodaway county—M. McNeal, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) Nothing said about it.

Oregon county—J. B. Johnson, Clerk.

1. There is not. 2. 3. 4. No. 5. 6. (b) I think not.

Osage county—A. Lieweke, Clerk.

1. No, never organized. 2. 3. No. 4. No. 5. 6. (b) I think not.

Phelps county—J. B. Sally, Clerk.

1. None. 2. 3. No. 4. I believe the city of Rolla has a board, but I am unable to state positively. 5. 6.

Pike county—C. C. Edwards, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) Don't know.

Platte county—J. J. Blakley, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) Do not know.

Polk county—J. J. Akard, Clerk.

1. There is no county board of health in Polk county. 2. 3. No, there is none. 4. None. 5. 6. I have heard no expression; cannot tell. Not well enough informed to give you an intelligent answer.

Ozark county—Thomas Mishler, Clerk.

1. No. 2. ... 3. No. 4. No. 5. 6. (a) Can't tell. (b). Cannot tell how public opinion is; have not heard any one express himself in regard to board of health.

Pemiscot county—H. P. Coleman, Clerk.

1. No. 2. 3. No. 4. None. 5. 6. (b) The above questions have never been discussed in our county.

Perry county—H. T. Burns, Clerk.

1. No county board. 2. 3. No. 4. City (Perryville) R. C. Waters, M. D. August Mercer. 5. No salary for city board of health. 6. (b) I could not say whether favorable or not.

Pettis county—T. F. Mitchum, Clerk.

1. A board was organized in this county August 19, 1885. 2. Judge Wm. Gentry, President, Dr. J. W. Trader, Health Officer; County Clerk, Secretary, and Drs. Samuel Conway and J. N. Ferguson. 3. Dr. J. W. Trader. 4. The City of Sedalia has an organized Board. 5. None. 6. (b) I cannot say; the board has never done any work that I know of.

Pulaski county—E. G. Williams, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. Don't want any; public opinion against it.

Putnam county—A. J. Williams, Clerk.

1. There is no board organized. 2. . . . 3. 4. 5. 6. (b) I hear nothing said concerning the organization of board of health.

Ralls county—G. D. Biggs, Clerk.

1. There is no county board of health in this county. 2. . . . 3. 4. 5. 6. (b) Have not heard the subject canvassed.

Randolph county—T. W. Roberts, Clerk.

1. None in county. 2. 3. No. 4. One in Moberly. 5. 6. (b) No.

Ray county—W. E. Ringo, Clerk.

1. None. 2. 3. None. 4. None. 5. 6. (b) Have heard no expression in regard to the matter.

Reynolds county—B. F. Cozine, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) Could not say, as the people of the county have never given the matter any thought.

Ripley county—J. K. Langford, Clerk.

1. None. 2. 3. 4. None. 5. 6. (b) Yes.

St. Charles county—J. K. McDearmon, Clerk.

1. None. 2. 3. Dr. John E. Bruere. 4. Only in the city of St. Charles; Dr. John E. Bruere, president. 5. 6. (a) Have no information. (b) Don't know.

St. Clair county—Thomas D. Hicks, Clerk.

1. There is none. 2. 3. There is none. 4. There was an auxiliary board but now demised; our city (Osceola) has a board of health. 5. None. 6. (a) Favorable. (b) Yes, as far as I can learn.

St. Francois county—T. H. Stam, Clerk.

1. None. 2. 3. None. 4. None. 5. 6. (b) I am not sufficiently informed to state.

Ste. Genevieve county—J. F. LeCompte, Clerk.

1. No Board in existence. 2. 3. None. 4. None. 5. 6. (b) Heard no opinion expressed.

St. Louis county—W. C. Wengler, Clerk.

1. No. 2. 3. No. 4. No. 5. No. 6. (b) Yes.

Saline county—H. Ferril, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) The matter has not been discussed.

Schuyler county—Chas. W. Bunch, Clerk.

1. Order of the county court. 2. Geo. W. Wilson, W. F. Mitchell and A. J. Eidson. 3. W. F. Mitchell. 4. Yes; city (Lancaster). 5. None. 6. (b) Yes.

Scotland county—James P. Nesbit, Clerk.

1. No. 2. 3. Not that I am aware of. 4. No. 5. 6. (b) I cannot say; I never heard it discussed.

Scott county—J. McPheeters, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (b) Can't say; haven't heard that discussed sufficiently to form an opinion.

Shannon county—J. Sholar, Clerk.

1. There is not. 2. 3. No. 4. None. 5. 6. (b) I don't know.

Shelby county—J. T. Perry, Clerk.

1. No. 2. 3. 4. 5. 6. (b) I am unable to say, but believe if there is any cost or expense to be incurred to raise and sustain one there would be objections.

Stoddard county—M. S. Phelan, Clerk.

1. No. 2. 3. No. 4. No. 5. 6. (a) I do not know the sentiment. (b) I have no idea.

Stone county—T. H. Smith, Clerk.

1. No. 2. 3. No. 4. No. 5. 6.

Sullivan county—Reuben Payne, Clerk.

1. There is no board of health in this county. 2. 3. 4. 5. 6. (b) I believe it is favorable.

Taney county—R. S. Branson, Clerk.

1. No. 2. 3. No. 4. 5. 6. (b) I think public opinion would be favorable to the organization of one.

Texas county—S. M. Hubbard, Clerk.

1. No. 2. 3. No. 4. 5. 6. (b) I think public opinion would favor it.

Vernon county—W. F. Gordon, Clerk.

1. None 2. 3. 4. 5. 6. (b) Don't know what the opinion is on the subject; don't think it would be sought after much.

Warren county—J. H. Koelling, Clerk.

1. We have no county board of health. 2. 3. 4. 5. 6.

Washington county—W. T. Hunter, Clerk.

1. No county board of health. 2. 3. 4. None. 5. 6. I have not heard the subject discussed, but do not think public opinion would favor it.

Wayne county—Jno. F. Rhodes, Clerk.

1. There is not. 2. 3. No. 4. No. 5. 6. (b) Don't think public opinion would favor such a move if it costs much.

Webster county—W. A. Turner, Clerk.

1. No. 2. 3. No. 4. None. 5. 6. (b) Can't say.

Worth county—J. F. Robertson, Clerk.

1. None exists. 2. 3. None exists. 4. None exists. 5. 6.

Wright county—E. C. Steele, Clerk.

1. No. 2. 3. None. 4. No. 5. 6. (b) No.

SMALL-POX IN MISSOURI IN 1888.

An account of the occurrence of the disease in different parts of the State, with correspondence and official papers and reports.

THE OUTBREAK IN SCHUYLER AND ADAIR COUNTIES.

The first information of the appearance of small-pox in Schuyler and Adair counties was contained in a letter to the Secretary from Dr. G. A. Gobin, a member of the Board, dated at Kirksville, January 30, 1888, as follows :

We have some cases of small-pox reported near here, and I will know soon if it is or not. Will you send me some reliable vaccine virus, or order it for me, at your earliest convenience.

In a letter to Maj. Gentry, President of the Board, under date February 1, Dr. Gobin said :

I wrote to Dr. Homan Monday reporting some cases of small-pox at Greentop, twelve miles from here. To-day I received a telegram from the postmaster at that place stating they had eight cases of small-pox, and wanted to know what to do about it. There has been no arrangement made to prevent the spread of the disease, and will, no doubt, spread all over the neighborhood. I believe I have no authority to enforce any quarantine, and the Legislature made no appropriation to do any sanitary work. Under the circumstances, what is best to do I leave to your judgment.

This communication reached the Secretary February 4, and the following letter was addressed the same day to the postmaster at Greentop :

A letter from Dr. Gobin of Kirksville has been referred to me by Major Gentry, President of the State Board of Health, in which notification is given of the existence in your town of a number of cases of small-pox.

The culpable failure of the Legislature last year to provide any means whatever for the support of the Board renders any active effort in your behalf on our part at this time impossible. We can only advise.

Your county court should at once meet and appoint some competent person health officer, with suitable compensation, whose duty it should be to immediately vaccinate every unprotected person in the town, and every one who has been exposed to the disease, regardless of the fact of possible previous vaccination. The sick should be at once separated from the well, and their strict isolation, with pro-

per nursing and medical attendance, secured. All infected garments, bedding, furniture, etc., should be either destroyed by fire or thoroughly disinfected upon recovery or death of the person affected.

Supplies of vaccine virus of best quality may be had from Dr. Paquin, State Veterinarian, at Columbia, Mo.

Thorough vaccination of those exposed or susceptible to the disease, strict isolation of the sick until all danger from them is past, and complete destruction or disinfection of all infected articles, premises, etc., will enable you to master the outbreak, and prevent its spread to other persons and places.

A communication from the Governor was received to this effect:

STATE OF MISSOURI, EXECUTIVE DEPARTMENT. }
CITY OF JEFFERSON, February 14, 1888. }

DR. GEO. HOMAN, *Secretary State Board of Health*, St. Louis, Mo.:

SIR: The enclosed communications referring to small-pox at Greentop, Schuyler county, Mo., have just reached me through Dr. Griffith of Kansas City.

By reference to Session Acts of 1883, p. 95, sections 4 and 5, you will observe that the State Board of Health is authorized to "establish quarantine regulations," and to call upon the executive officers of the State and counties to assist in enforcing such regulations.

I refer these papers to you as Secretary of the Board, and suggest that the Board at once take such action as it may deem wise and prudent, and I will give it such assistance as I may under the law. If necessary, I will issue my proclamation enforcing the regulations established by the Board, as was done by the Governor in the quarantine against pleuro-pneumonia in October, 1886.

Very truly yours,

(Signed)

A. P. MOREHOUSE.

The following was submitted in reply, under date of February 15:

In reply to your favor of 14th instant, with enclosures. I beg to say that I have endeavored to keep myself informed in regard to the status of the small-pox outbreak at Greentop, but in this effort have not been altogether successful. I have depended mainly on Dr. Goben, a member of this Board, who lives twelve miles distant from the place named, for information and advice to the local authorities as to what measures should be pursued to overcome the disease. A report from the postmaster at Greentop to Dr. Goben was replied to me, as follows:

(See letter of February 4, above.)

No reply was received in answer to this communication; but I have, within the last two days, both written and telegraphed to Dr. Goben, requesting a statement of the present facts in regard to the disease, though have had no reply as yet.

Last week I telegraphed Dr. Paquin at Columbia, informing him that epidemic small-pox was feared, that many cases were reported at Greentop, and suggesting that the State vaccine laboratory be worked to its fullest capacity, and that supplies of matter be sent free to all infected and threatened points.

A meeting of the Board has been called, to convene in this city on the 27th instant, but meantime, should Dr. Goben advise that in his judgment quarantine should be declared, I will at once notify you to that effect.

In accordance with an agreement made with other State Boards of Health, I have notified authorities of neighboring States of the existence of small-pox in this State.

To Hon. A. P. MOREHOUSE, *Governor*.

After having consulted all the members of the Board in person or by telegraph, asking whether they advised that the Board should recommend the Governor to issue his proclamation establishing quarantine in the localities of the outbreak, the following letter, with enclosures, was sent to the Governor :

ST. LOUIS, Feb. 16, 1888.

Hon. A. P. MOREHOUSE, *Governor*,
Jefferson City, Mo. :

DEAR SIR—Having been advised by Dr. Goben, under date of 15th instant, that in his opinion it is impossible to control the small-pox outbreak in Schuyler and Adair counties without quarantine measures through the State Board, as the local authorities will do nothing, and having requested by telegraph to-day advice from the different members on this point, and the majority sentiment being in favor of such a step, I enclose herewith resolutions of the Board in regard thereto, together with rules framed to meet the emergency in accordance with sections 3, 4, 5 and 6 of the act creating this Board.

Said documents are respectfully submitted for your consideration, and such action as may be deemed wise and necessary.

Very respectfully yours,

GEO. HOMAN, Secretary.

RESOLUTIONS OF THE STATE BOARD OF HEALTH, AND RULES FOR THE
CONTROL AND SUPPRESSION OF SMALL-POX.

WHEREAS, The State Board of Health being satisfied that small pox exists in the town of Greentop, Schuyler county, and districts lying adjacent thereto, and in the town of Millard, Adair county, to such an extent as to endanger the lives of the inhabitants of other parts of the State having direct communication with such infected places and localities; therefore,

Resolved, That the Governor is hereby requested to issue his proclamation establishing quarantine regulations against such infected places and districts, to determine and regulate to what extent and by whom any communication or business transaction with such infected places or districts may be had.

Resolved, That in accordance with the act creating this Board, the following rules and regulations, deemed necessary to prevent the spread of such disease, are hereby established :

Rule 1. Railway corporations and all other common carriers are hereby forbidden to receive for transportation any person or persons from such infected towns or districts, without a certificate from the authorities of the aforesaid counties or towns, that such person or persons are free from small-pox, that they have not been exposed to the disease within fourteen days, and have taken all necessary precautions to avoid its infection and prevent its communication to others.

Rule 2. No household goods or personal effects or baggage shall be received for shipment by said carriers from such infected towns and districts without a certificate signed by the authorities of said towns and counties, to the effect that they are free from danger of spreading the disease in transit, or at places of destination. In case of doubt on the part of carriers, a statement under oath in regard to the real facts may be required of the proposed passenger or shipper, under this and the foregoing rule.

Rule 3. These rules and regulations shall remain in force for a period of sixty days from date of promulgation, subject to modification, or extension to other places or localities, as circumstances may seem to indicate or require.

Attest :

GEO. HOMAN,
Secretary.

The Board met on Feb. 27, and heard the following report :

KIRKSVILLE, MO., Feb. 23, 1888.

GEO. HOMAN, M. D.,

Secretary State Board of Health, St. Louis, Mo. :

DEAR SIR—In accordance with your request of the 21st instant, I beg leave to report :

First, as to the cause of small-pox in this and adjoining county. There are several rumors as to the cause, but the theory accepted by most is that a young lady residing near Greentop, in Schuyler county, was on her way on the train to Kirksville. She saw a strange woman aboard the train sitting on a seat before her, her face so covered up that she could not distinguish her features or even determine at first whether she was a man or a woman, for even her body was almost completely covered up with wraps. She soon became aware that the woman was sick, but of course had no idea with what disease she was afflicted. She made but a short stay in Kirksville and returned to her home near Greentop in Schuyler county. In due course of time she was taken sick with a fever. It was not known at first what ailed her, and many persons called to see her, and thus the disease got scattered through the neighborhood. Some of the children of the district school took it, and being confined in a close room with others, it is supposed that they gave it to them. It is reported that one girl went to school even after the fever was on her, and fainted in the school-room.

Second, as to the number of cases that there has been. As nearly as can be estimated, there are twenty-five cases in Adair county, and five in Schuyler, near the north line of Adair. There has been but one death, and that was a lady who was pregnant at the time and died from miscarriage.

Third. The doctors who have treated these cases of small-pox so far as known to the undersigned, are, Dr. Parish, who was first called to see a Mr. Smith living in Schuyler county, and on discovering that he had the small-pox, refused to treat him further; Dr. Avery of Queen City then took the case, and has successfully treated the case of Mr. Smith and four more of his family who have since taken the disease; Dr. Wilson of Greentop, Missouri, has attended about twenty-five cases of small-pox in Adair county and lost but one, the lady before alluded to, whose death was caused by miscarriage brought on by the small-pox; attended the first case, and has been the chief physician in these cases.

Fourth. The county court of Adair county have done nothing, as they say they have no power under the existing laws to do anything. The city council of Kirksville have done all in their power to prevent the spread of the disease. A board of health has been appointed under the city charter, of which the undersigned is president. Every person known to be exposed has been vaccinated, and everything that was possible done to prevent the spread of the disease, and isolate those who were known to be afflicted or exposed. We think that we now have it thoroughly under control. The disease is in the country at farm-houses, and not in the towns as reported, save a single case at Millard in the southern part of the county.

Fifth. There have been, as nearly as I am able to estimate, about one thousand persons vaccinated. I have vaccinated over a hundred myself. I ordered vaccine

from Chicago, St. Louis and Columbia, Mo. It was some time before virus could be obtained, but at last I received it from Columbia, and used it with excellent successes. I don't think it failed in a single instance. Too much cannot be said of the value of vaccination. In every case where persons exposed were vaccinated, they had the disease only in the mildest form. One-half of the cases now reported are those who have been vaccinated, and it is said that their cases are very mild.

The above being in substance all the facts of which you require a report, I beg leave to subscribe myself,

G. A. GOBEN,

Member State Board of Health.

After a full survey of the situation and consideration of all the interests involved, action was taken as is indicated in the following letter:

ST. LOUIS, Feb. 23, 1888.

Hon. A. P. MOREHOUSE, *Governor*,

Jefferson City, Mo.:

DEAR SIR—At a meeting of the State Board of Health held in this city yesterday, the resolutions and rules of this Board to establish a sanitary supervision and control over communication with places infected with small-pox, which were mailed to you on the 16th instant, were confirmed, and the following resolution was unanimously adopted:

WHEREAS, From information received, this Board is satisfied that small-pox exists in epidemic form in certain parts of Schnyler and Adair counties in this State; therefore,

Resolved, That the State Board of Health again and publicly call the attention of the Governor of the State to the necessity of a quarantine of the infected districts of the aforesaid counties, and that he be again requested to issue his proclamation to establish and enforce the quarantine rules and regulations adopted and recommended by this Board on the 16th instant for the protection of other parts of the State in communication with the small-pox infected localities.

Very respectfully yours,

GEO. HOMAN, Secretary.

The Governor's quarantine proclamation was issued on March 1. After reciting the resolutions and rules of the Board as given, it concludes as follows:

AND WHEREAS, The State Board of Health has requested me to issue my proclamation to enforce the quarantine rules and regulations adopted and recommended by said Board:

Now, therefore, I, Albert P. Morehouse, Governor of the State of Missouri, do hereby caution and warn all persons, railway companies and other common carriers against violating any of the foregoing rules and regulations established by the State Board of Health, for a period of thirty days next ensuing.

And I hereby call upon and direct all sheriffs, constables and other executive officers of this State to assist in enforcing said quarantine, and in protecting the people of the State against the spread of such disease.

(Signed)

ALBERT P. MOREHOUSE, Governor.

Some dissatisfaction being expressed to the Governor and officers of the Board by citizens of the localities concerned, on account of the

alleged injustice and injurious discrimination due to restrictions imposed, the following was addressed by the Secretary to Dr. J. A. Wilson, of Greentop, the chief complainant, under date of March 16:

* * * In reference to the matter of your complaint regarding quarantine rules and regulations for the suppression of small-pox, established by the Governor March 1 by recommendation of the Board, I beg to call your attention to the fact that this course was advised just one month ago, but for reasons unknown to the Board action was delayed by the Governor for about two weeks. Had the rules recommended been promptly established, the period of time specified for their continuance, namely thirty days, would have about expired by this time, and the danger having apparently passed, they could be suspended or revoked.

I desire to collect all facts possible in regard to the beginning of the outbreak, its progress, the number affected and exposed, the influence of vaccination in arresting its course in those exposed and susceptible, the number of people exposed who were previously unvaccinated, etc., etc., a complete and concise account of the occurrence of the disease as seen by you being desired for preservation and publication. I ask this for the reason that the value of your services in this connection was mentioned in very complimentary terms by Dr. Goben, of Kirksville, a member of the Board, in a statement in regard to the epidemic presented by him at a meeting of the Board on the 27th ult.

If you will confer with Dr. Goben in regard to the present status of affairs at Greentop and the country adjacent, and if he will then recommend the suspension of quarantine rules, the Board would be in a position to make a suitable recommendation concerning it to the Governor.

I send you a copy of the report of the Board, with sections of Board of Health act marked, showing that the Board acted in strict conformity to the law in the course pursued.

Communications of this purport were addressed to the county courts of Adair and Schuyler counties:

Acting upon trustworthy information received in regard to the existence of small-pox in your county, and of the liability of the disease to spread to other portions of the State in communication with the infected localities, this Board, in the interest of the public, on the 16th ultimo framed quarantine rules and regulations for the sanitary regulation of communication with such localities, and on the same day requested their establishment by proclamation of the Governor.

The action taken by the Board was in strict obedience to their sworn duty, and in accordance with the act creating a State Board of Health, approved March 29, 1883, sections 3, 4 and 5.

Protests against the action thus taken have been received at this office from medical gentlemen who have been in professional attendance on cases of small-pox, who claim that the course of the outbreak has been arrested and that danger from the disease is now past.

In order to enable this Board to act advisedly in the matter of raising the restrictions imposed upon localities in your county, it is desirable that your county health officer shall officially report the facts to this Board, together with any recommendations or suggestions he may deem necessary. By so doing the Board will be in a position to make a suitable recommendation to the Governor in the premises.

No replies were received to these communications from either of the bodies addressed.

In the hope of being able to collect all the essential facts in regard to the epidemic, letters were written to all the physicians mentioned in Dr. Goben's report as having been in professional attendance on small-pox patients, requesting such information, but no notice was taken of them except by Dr. Wilson, who detailed at some length his experience with the disease.

Dr. Goben's report suggests the origin of the epidemic as due to exposure of a susceptible person to a small-pox patient on board a railway car.

In order to trace this clue as closely as possible, recourse was had to the authorities of the Wabash railway, as is fully shown by the appended correspondence and reports :

St. Louis, March 28, 1888.

J. W. JACKSON, M. D.

Chief Surgeon Wabash-Western Railway Co., Kansas City, Mo. :

DEAR SIR—In a report on the recent outbreak of small-pox in Schuyler and Adair counties, this State, made by Dr. Goben at the meeting of the State Board of Health on the 27th ult., it was stated that so far as could be determined the epidemic originated by contact with another passenger during a few miles travel of a young lady who resided near Greentop, the period of exposure being the time required to reach Kirksville by rail from Greentop.

The person suspected of communicating the disease was a woman who occupied a seat in the car immediately in front of the young lady, who was closely covered with wraps, her face also being so concealed that her features could not be distinguished.

Being desirous of gathering all the facts possible in regard to this outbreak, I have addressed letters to all the physicians who were mentioned as having treated small-pox patients, but have received very little information of the kind desired. I therefore ask you if it would be feasible for you to institute an inquiry among the railroad employes to ascertain where the woman suspected of originating the disease in the localities named came from, and her place of destination.

I am unable to fix the date upon which the young lady was exposed to the infection, but it was probably subsequent to the middle of January.

Your co-operation in this will be greatly appreciated.

Very respectfully yours,

GEORGE HOMAN, Secretary.

To the same on April 12 by the Secretary :

DEAR SIR—In reply to your favor of recent date, which was forwarded to Dr. Goben of Kirksville, I am informed by him that the exposure of the young lady on the train to the woman supposed to have been suffering with small-pox occurred on January 12 or 14, the young lady traveling from Greentop to Kirksville.

It is to be hoped that the original source of infection in this instance may be traced and located.

The request was duly referred through E. L. Magee, Esq., Superintendent, to Mr. E. A. Gould, Master of Transportation at Moberly, who received the following report dated May 2, from Mr. H. Soudershausen, station agent at Greentop :

After considerable delay in replying to your request for me to make a statement in regard to the most acceptable theory as to how small-pox is supposed to have originated during the past winter in our vicinity, I will say that through much inquiry I learn that on or about Jan. 20, 1888, a Miss Edwards, living about $3\frac{1}{2}$ miles southeast of this place, got aboard our No. 2 train here on her way to Kirksville; and she says a lady heavily wrapped and apparently in much misery sat in front of her, and it is to her that Miss Edwards attributes her becoming inoculated, as it was only eight or nine days afterward when she was prostrated with the disease. The malady at first not being understood in the neighborhood, people visited her in her first stages of sickness, and contracted thereby a spread of the disease.

The brother's bringing it home from a point west was for a while spoken of, but this theory does not gain credence, as it was but three or four days after his coming home until his sister was taken ill.

Mr. Gould adds the following, under date May 16, to Mr. Magee :

Returning papers in regard to the origin of small-pox near Greentop, please note letter from agent at that point. This was the commonly accepted theory as to how it originated for some time after it broke out, but another and more plausible theory was that a young man named Lick, a brother to the lady who was first attacked, came to her house from some point on the Santa Fe road, and had just recovered from small-pox, and she contracted the disease from washing his clothes. I have made diligent inquiry among train men running north, and had them to investigate as best they could, and the general verdict appears to be in favor of the latter theory. Conductor Williams, who was running train No. 2 the day the heavily wrapped lady mentioned is supposed to have been on that train, says he can remember nothing of any such circumstance. If there is anything further that you can suggest as to the best way of going further into the case, I will gladly pursue the matter still further.

An inquiry addressed to the young lady mentioned in the reports as being the first person affected, requesting all the particulars known to her, remained unanswered, and the investigation of the subject was necessarily closed with some doubt remaining as to the real source of the infection.

THE OUTBREAK AT MOBERLY.

The following very excellent report by Dr. Joseph Grindon of St. Louis, of the epidemic of small-pox at Moberly, is given under date of July 24, 1888 :

I have the honor to report as follows in answer to your inquiry concerning the recent outbreak of small-pox at Moberly, in Randolph county, this State :

On the 28th day of May last I entered on my duties as small-pox physician to the city of Moberly. There were at that date fourteen cases in the pest-house and thirteen quarantined in four different families.

I was put in possession of the following facts relative to the history of the outbreak prior to my arrival: Early in March there came to this town direct from Switzerland a poor emigrant named Julius Joray. He was said to have been a pauper in his native canton, but brought with him no less than fourteen chests and trunks filled with second-hand clothes. What part these played as carriers of the infection it would not now be possible to determine. The fact is that five weeks after his arrival, and presumably two weeks or thereabout after the unpacking of a trunk containing the fomites of small-pox, his little daughter sickened with that disease. This was the first instance of the disease occurring in or about the town in several years.

This case was kept hidden, but a number of persons were admitted to the house for various reasons, nine of whom received the contagion at first hand. From these nine we found a third generation appearing as follows: Four cases gave rise to one other apiece; one, to two cases; one to three cases and another to eight, one of which eight gave rise to three new cases forming a part of the "fourth generation." Energetic and timely measures jugulated all these *foci* of inspection, except one case belong to the "third generation," which was kept successfully hidden until it had infected seven more individuals, who, with the three above mentioned, formed the "fourth generation." One of these seven was isolated before it could prove a source of contagion, but from some or all of the remaining six (all living on the same premises) there sprang a "fifth generation" of eight cases, seven of which were isolated in sufficient time, and the remaining one giving birth to a sixth and last "generation" consisting of a single case, which, being discovered and promptly dealt with at its inception, was the last one of the outbreak which thus terminated. Besides these cases there was one of unknown origin which existed contemporaneously with the "second generation" and left one descendant. This makes a total of 48 cases, 3 of which occurred without the city limits.

There were, all told, three deaths, two being of infants under three years of age, and one of a woman who aborted during the secondary fever, which gives us a percentage of $6\frac{2}{3}$ for the city of Moberly, and, including the three outside cases, $6\frac{1}{4}$ per cent.

The showing for the two races is as follows:

	Cases.	Deaths.	Per cent.
White.....	31	1	3.2+
Colored.....	17	2	11.7+

The last case was discovered and admitted to the hospital on June 24th, and the last patient was discharged and the hospital closed on July 14th.

Extract from an article entitled "The recent outbreak of small-pox at Moberly, Missouri," by Joseph Grindon, M. D., printed in the St. Louis Courier of Medicine for November, 1888:

The table here given illustrates two points: First, the effect and importance of isolation. Thus, the seventh case in the second column remained concealed from the authorities until it had given rise to another, which in turn infected others, so that we see seventeen cases, two of which were fatal, originating from that one. This was after the existence of the disease in the town was known. It goes without saying that if the first case had been isolated in time, the matter would have ended there, as the later cases could be traced back. This text preaches its own sermon.

PROGRESS OF THE CONTAGION IN SMALL-POX OUTBREAK.

April	May			
"				
"				
" 17, 19	May 3			
	" 3			
	" 3			
	" 6			
	" 7			
	" 6, 7	May 22		
		" 22		
		" 22		
April	May 14			
" 17, 19	" 2			
" 19, 22	" 4, 6	May 20, 23	June 1	
		" 23	" 2	
		" 26	" 5	
		" 26	" 6	
		"	" 9, 9	June 22
		" 30	" 10	
		" 26	" 11	
			" 16	
April 21, 23	May 5			
" 22, 24	" 6			
	" 6			
	" 7			
Apr. 28, May 2	" 15			
	" 16			

The second point shown is in regard to the duration of the period of incubation. Where one date is given with a case it stands for the day of inception; when there are two dates, the second is the day of eruption. Reckoning from the date of eruption in the patient to the date of inception in the infected, we have the greatest possible duration of incubation. In a large proportion, however, it was impossible to define this period more exactly; thus it was:

Cases.	Days.
1	10
4	12
7	13
5	14
3	15
1	17

It was shown to be not over 17 days in one case, and not over 18 in another; while it was 10 days in one, and over 13 in another case.

SMALL-POX IN THE CITY OF ST. LOUIS.

By request, Dr. G. F. Dudley, Health Commissioner of the city of St. Louis, has kindly given the following account of the appearance and spread of small-pox in St. Louis, under date December 7, 1888:

As to the source of the disease, all that is known is stated in my annual report, page 2. The point in the city from which the disease spread among the colored

population is supposed to have been 812 and 817 Christy avenue, inhabited by negroes. While a few cases (colored) were found at points far removed from this locality, it is probable that all the negroes were directly or indirectly infected from it.

All persons discovered with small-pox are immediately removed, with all infected bedding and clothing, which are destroyed and paid for by city. After the removal of patients, the houses are thoroughly fumigated with sulphur fumes and chlorine gas.

From February 14, 1888, to July 20, 1888, 73 cases of small-pox were discovered and removed to the small-pox hospital—69 from the city, 2 from Bridgton and 1 from Carsonville, St. Louis county, and 1 from East St. Louis, Ills. Of these, 11 were white, 62 colored; 45 males and 28 females. Of the 73 cases treated, 7 died—1 white, 6 colored—4 males, 3 females.

The last patient was discharged from the hospital in the latter part of August.

On Nov. 10, 1888, a case of small-pox (a white child) was discovered in the southern part of the city. Since that time five more cases (all white) have been discovered and removed to the hospital. Five of the six cases were discovered in that portion of the city south of Park avenue, east of 12th street and north of Anna street. The point of infection in these cases is supposed to have been Belleville, Ill., where small-pox has been prevalent for several months. The sixth case discovered was a man who had recently arrived from Topeka, Kansas.

Extract from the Annual Report of the Health Commissioner for 1888 :

About the middle of February last a case of small-pox was reported to this office, from 13th and Spruce streets, which was at once removed to small-pox hospital, and the most diligent search made as to where this patient contracted the disease, but without success. Small-pox had previously been reported at some points in the interior of this State, and some cases had been reported from the neighboring State of Illinois.

After a few sporadic cases had been found here in the central part of the city, at intervals of some days, the source from which nearly if not all the disease in the city had spread was found in one or two houses on Christy avenue, occupied by a promiscuous population of white and black people.

Here some very mild cases of varioloid had occurred and recovered before the nature of the disease was recognized or the authorities had any knowledge of it.

The clothing and bedding becoming infected, the disease was spread among that class of people in many directions.

The management of the disease has been, with a firm determination, to isolate the patients, destroy all infected articles by burning, vaccination of all persons in infected localities, and thorough disinfection of the infected houses.

I have taken the precaution to have the children in the public, private and parochial schools vaccinated, as far as possible. The law should compel the successful vaccination of all children before being permitted to enter as pupils in any school.

Other Dangerous Communicable Diseases

DIPHTHERIA AND SCARLET FEVER.

Diphtheria having proved a troublesome scourge in the city of St. Louis during the last two years, by request Mr. C. W. Francis, chief of the sanitary division of the health department, has kindly furnished the following information concerning it :

RECORD OF DIPHTHERIA IN ST. LOUIS FROM JANUARY, 1886, TO DECEMBER, 1888.

	Cases.	Deaths.
1886.....	2,826	719
1887.....	3,108	927
1888 (to December 1).....	1,483	503
Total cases.....	7,417	Total deaths.. 2,149

Deaths are included in the number of cases.

Cases and deaths by districts in the district south of the Missouri Pacific railroad and east of Grand avenue, which embraces the following nine wards, viz. : Third, Fifth, Seventh, Ninth, Eleventh, Twelfth, Twenty-first, Twenty-third and Twenty-fifth ; estimated population, 146,000 ; 3,695 cases and 1,009 deaths.

In the district between the railroad and Wash street, and east of Grand, which district embraces the following seven wards, viz. : First, Second, Fifteenth, Seventeenth, Nineteenth, Twentieth and Twenty-second ; estimated population, 110,000 ; 895 cases and 272 deaths.

In the district north of Wash street, which district embraces the following nine wards, viz. : Fourth, Sixth, Eighth, Tenth, Twelfth, Fourteenth, Sixteenth, Eighteenth and Twenty-fourth ; estimated population, 143,000 ; 2,146 cases and 645 deaths.

In the district outside of Grand avenue, which district embraces the following three wards, viz. : Twenty-sixth, Twenty-seventh and Twenty-eighth ; estimated population, 50,000 ; 681 cases and 223 deaths.

Districts.	Cases.	Deaths.
First district.....	3,695	1,009
Second district.....	895	272
Third district.....	2,146	645
Fourth district.....	681	223
Total.....	7,417	2,149

Number of cases includes number of deaths.

In the First district, where the diphtheria has been the worst, there are 225 dairies and 4,700 cows, the majority of the large breweries and several slaughter-houses.

In the Second district, which is the close built portion of the city, and where are the large tenement houses, there has been but little diphtheria, but in this district there are *no dairies* and only two breweries.

In the Third district there are a large number of slaughter-houses, some thirty dairies, and you find in this district a large number of privies and smoke-houses combined: that is, the privy is on the ground floor and the smoke-house is just over it.

The Fourth district is outside of Grand avenue, and has but few sewers and no dairies connected with them. There are a large number of dairies in this district, but they drain out into the small streams, which, of course, is very bad.

This district is for the greater portion farming land. To give an idea of the extent of this district, I will state that inside of a line 600 feet west of Grand avenue there are 11,504 acres of land, and outside of this line, to District No. 4, embracing the Twenty-fifth, Twenty-seventh and Twenty-eighth wards, there are 27,702 acres; so this district has about one-ninth of the population and nearly three-fourths of the area: that is, on 11,504 acres there is a population of 400,000, and on an area of 27,702 acres there is only a population of 50,000.

STATEMENT BY YEARS AND MONTHS.

1886.

Months.	Cases of diphtheria.	Deaths from diphtheria.
January	124	45
February.....	94	35
March	82	42
April	107	24
May	100	28
June	123	32
July	108	48
August	187	57
September	292	85 Schools open.
October.....	429	106
November.....	690	123
December.....	460	94
Total	2,826	719

The number of cases includes the deaths: that is, 719 deaths occurred out of 2,826 cases; ratio of deaths to number of cases, 25 per cent.

1887.

Months.	Cases of diphtheria.	Deaths from diphtheria.
January	313	82
February	183	47
March	182	41
April	138	52
May	158	50
June	125	43
July	113	46
August	254	62
September	427	135
October	457	115
November	440	139
December	318	115
Total	3,108	927

The cases include the deaths. Ratio of deaths to cases, 30 per cent.

1888.

Months.	Cases of diphtheria.	Deaths from diphtheria.
January	231	88
February	139	46
March	164	60
April	137	44
May	89	34
June	93	34
July	64	15
August	88	27
September	131	48
October	215	61
November	132	46
Total	1,483	503

The cases include the deaths. Proportion of deaths to cases, 34 per cent.

SCARLATINA.

1888.

Months.	Cases of scarlatina.	Deaths from scarlatina.
January	35	4
February	28	1
March	20	1
April	27	2
May	38	5
June	15	1
July	12	1
August	13	0
September	16	0
October	54	5
November	53	3
Total	311	23

No. of deaths fiscal year ending April, 1886	164
" " " " " 1887	118
" " " " " 1888	40

TYPHOID FEVER IN WASHINGTON COUNTY.

A limited outbreak of typhoid fever having occurred during the present year in Caledonia, Mo., the following account of it is given by Dr. George Eversole, under date of December 16, 1888 :

There occurred in this town and immediate vicinity fourteen cases of typhoid fever, the origin obscure, and we are utterly at a loss to know how it was introduced.

The initial case was a little girl, age twelve, in poor circumstances and filthy surroundings ; she had not been out of town for a year ; she used water from a well near the house in which she lived ; no others drinking from that well had the fever.

The cases were isolated except in two instances ; there were four cases in one house, two in the other.

The water used at this place is obtained from wells, cisterns and springs.

The house of four patients used water altogether from a cistern. There occurred in this house one death.

The cases were all (except the first mentioned) in the first families of the town, in good circumstances, plenty to eat and pleasant surroundings.

Patients were all under 23 years of age except two, one 30 and the other 40. There is no stagnant water in or near this place, and there never was a case of typhoid fever here before that I know of ; so says a doctor who has practiced here for 18 years.

OFFICIAL STATEMENT,

Showing the amounts of financial support accorded to the State Boards of Health of twenty-nine States, by their respective State governments, and available for public health purposes and the prevention of epidemic disease during the year 1888.

The communications from which the subjoined data was taken were received in reply to a circular letter, dated about the middle of November, 1888, addressed to the secretary or executive officer of every State Board of Health in the United States, as follows:

Will you kindly inform me at your earliest convenience what appropriation you receive from the State for the annual expenses of your Board, and general or special sanitary work in the interest of the public?

Also the amount of contingent funds, if any, at your disposal in case of emergencies?

Alabama—W. R. Brassell, Clerk State Board of Health.

In the absence of Dr. Cochrane, I beg leave to quote the following from section 1295, code of Alabama, which I think will furnish the desired information: For the purpose of carrying into execution the health laws there is appropriated to "The Medical Association of the State of Alabama," annually, the sum of \$3,000. In the case of emergencies there is the sum of \$10,000, or so much thereof as may be necessary, annually appropriated to defray the expenses that may arise from actions taken by the State Board of Health to prevent the introduction of yellow fever or any other infectious epidemic or pestilential disease into the State of Alabama.

California—Dr. G. G. Tyrrell, Secretary State Board of Health.

The State allows for the annual expenses of the Board \$1,250. No amount is appropriated for general or special sanitary work. There was a contingent fund of \$10,000 appropriated two years ago for the prevention of the invasion of infectious or contagious diseases.

Connecticut—Dr. C. A. Lindsley, Secretary State Board of Health.

The total amount paid for the expenses of the Board, including the salary and expenses of the secretary, shall not exceed \$5,000, which amount is annually appropriated for this purpose. In case the Asiatic cholera, as an epidemic, shall prevail in this country, and in consequence thereof it shall become necessary in the unanimous opinion of the State Board of Health, to expend, in protecting the people of this State from the ravages of said disease, a greater amount than the sum now provided by law to be expended by the Board, said Board is authorized and em-

powered to expend such other sums as may in their opinion be necessary for the purpose. The Board is authorized to investigate and ascertain as far as practicable all facts in relation to the pollution of streams and natural waters of the State by natural causes in each year, and the treasurer is authorized to pay for the purposes of such investigation and experiments, a sum not to exceed \$5,000.

Delaware—Dr. E. B. Fraser, Secretary State Board of Health.

Our State appropriates but \$350 to the State Board of Health for the preservation of the public health.

Illinois—Dr. J. H. Rauch, Secretary State Board of Health.

The Legislature of 1885 appropriated the sum of \$24,000 to this Board for the two years ending June 30, 1887; and also a contingent fund of \$40,000 in cases of emergency. The Legislature of 1887 appropriated \$18,000 to the Board for the two years ending June 30, 1889, and a contingent fund of 40,000 in cases of emergency. The difference in the appropriations made by the Legislatures of 1885 and 1887 is about equaled by the increased fees we are receiving.

Indiana—Dr. C. N. Metcalf, Secretary State Board of Health.

Our appropriation is \$5,000, out of which we pay the salaries of the Secretary and clerks, expenses of Board meetings, stationery, postage and printing, except the printing of our annual report, which is paid out of another fund. We have no contingent fund on which to draw.

Iowa—Dr. J. F. Kennedy, Secretary State Board of Health.

The appropriation made is \$5,000 annually, or so much thereof as may be necessary. No contingent fund is provided. The biennial report of the Board is printed by the State, and is not considered in our appropriation.

Kansas—Dr. J. W. Redden, Secretary State Board of Health.

The State, for the past four years, has made the following appropriations for the State Board of Health annually: Secretary's salary, \$2,000; expenses of the Board, \$2,000; special sanitary work, \$500; but have not allowed us anything for contingent expenses in case of emergency.

Kentucky—Dr. J. N. McCormack, Secretary State Board of Health.

Our annual appropriation is \$2,500, which does not include printing. We have no contingent fund, but any expense legitimately incurred by a county board of health in preventing the spread of communicable diseases is a charge upon the county which cannot be avoided. This makes the appropriation for such purposes practically unlimited.

Louisiana—Dr. L. F. Salomon, Secretary State Board of Health.

We receive no appropriation from the State for expenses of this Board. All expenses are paid out of revenue received from quarantine inspection fees. For special sanitary work in the city of New Orleans that corporation appropriates \$5,000 for the pay of sanitary police.

Maine—Dr. A. G. Young, Secretary State Board of Health.

Our State Board of Health has an annual appropriation of \$5,000. This appropriation has to cover all expenditures, including postage, stationery, expressage, etc. We have no contingent fund whatever.

Maryland—Dr. C. W. Chancellor, Secretary State Board of Health.

For expenses State Board of Health:

Annual appropriation.....	\$3,000 00
Contingent epidemic fund.....	10,000 00

Massachusetts—Dr. S. W. Abbot, Secretary State Board of Health.

Regular appropriation for 1888:

General expenses of Board.....	\$9,300 00
Inspection of food and drugs.....	10,000 00
Water supply and drainage work.....	25,000 00
Special appropriation—	
For report on Mystic Valley sewerage.....	15,000 00
For report on protection of ice supplies.....	2,000 00
Contingent fund in case of Asiatic cholera.....	50,000 00

Michigan—Dr. H. B. Baker, Secretary State Board of Health.

There is an annual appropriation of \$6,000 placed at the disposal of the Board. The clerk hire for the office and the expenses of printing and binding the annual reports are provided for by other laws. The Legislature of 1885 appropriated a contingent fund of \$10,000 to be used to prevent the introduction of cholera or other dangerous communicable diseases. Of this sum a little over \$850 was used during the great prevalence of small-pox in Montreal, September and October, 1886. The remainder may be used when necessary.

Minnesota—Dr. C. N. Hewitt, Secretary State Board of Health.

\$5,000.00 appropriated annually for the general expenses of the Board, including the salary of the Secretary.

\$3,000.00 appropriated annually for the control of infectious diseases of animals.

\$1,000.00 appropriated annually for the collection and compilation of vital statistics.

\$20,000.00 contingent fund.

Mississippi—Dr. Wirt Johnson, Secretary of State Board of Health.

The annual appropriations for this Board are as follows:

For meetings of Board.....	\$750 00
For Secretary's salary	800 00
For quarantine purposes (contingent).....	20,000 00
For prevention of spread of contagious and infectious diseases in the State (contingent)	25,000 00

New Hampshire—Dr. Irving A. Watson, Secretary State Board of Health.

The State gives this Board an annual appropriation of thirty-five hundred dollars (\$3,500) for the salaries of the secretary and clerk and incidental expenses. This does not include printing or postage, both these items being from a general fund. We have an epidemic fund at our disposal in case of emergency, amounting to nearly five thousand dollars.

New Jersey—Dr. E. M. Hunt, Secretary State Board of Health.

The appropriation is \$7,000 00. The salary of the secretary outside of this is \$2,500. With the approval of the Governor and Treasurer and Comptroller, or in case of epidemic, we can spend any amount. We have a separate appropriation of \$10,000.00 for the Dairy Commissioner, who is appointed by this Board. We have in addition \$2 000 00, for cattle diseases, which, if need be, can be increased to five thousand.

New York—Dr. Lewis Balch, Secretary State Board of Health.

Our annual appropriation for the general work of the Board as defined in its organic law is \$20,000, and for the administration of special laws for the prevention of the adulteration of food and drugs and the regulation of the standard of illuminating oils, \$5,000.00.

North Carolina—Dr. Thomas F. Wood, Secretary State Board of Health.

The appropriations for the North Carolina Board of Health are as follows : \$2,000.00 for general use ; \$500 for printing ; \$3,000 for contingent fund. In addition chemical work is paid for by the State ; rather, furnished at the Agricultural Experiment station.

South Carolina—Dr. H. D. Fraser, Secretary State Board of Health.

The amount appropriated by this State for the uses of the Board of Health was \$2,000.00. During the cholera epidemic in Southern Europe a supplementary appropriation of \$2,000.00 more was placed in the hands of the Board to be used for inspection and sanitary purposes.

Ohio—Dr. C. O. Probst, Secretary State Board of Health.

For the fiscal year we got \$4,000.00. No contingent fund at our disposal.

Pennsylvania—Dr. Benjamin Lee, Secretary State Board of Health.

The appropriation received by this Board from the State is \$5,000.00 per annum, and all printing for us besides. There is no contingent fund.

Rhode Island—Dr. C. H. Fisher, Secretary State Board of Health.

The only appropriation made the Board specifically is \$2,000—for my salary as Secretary, \$1,700, and incidentals \$300. My compensation as State Registrar is independent of the State Board of Health, as are all the registration expenses. The expenses of investigation or any sanitary work are paid from the general treasury of the State, when certified by the chairman of the Board and approved by the Governor. I do not think the amount will exceed \$700 for 1888. This does not include any expenses in the department of vital statistics. In case of emergency, the Governor is authorized to order or approve of sanitary investigation or measures in behalf of the public health ; no limit of expenditure named.

Tennessee—Dr. J. Berrien Lindsley, Secretary State Board of Health.

The annual expenses of this Board are limited to three thousand dollars (\$3,000), which includes Secretary's salary, clerk hire, printing and expenses, and per diem of members.

During our quarantine service this summer, the expense was paid from the State treasury—the Governor, Comptroller and Treasurer feeling warranted in so doing.

Texas—Dr. R. Rutherford, State Health Officer.

The appropriations for quarantine and other purposes for the last two years have been as follows :

For 1887, expenses.....	\$25,000 00
For building, etc.....	12,500 00
Extra session, general expenses.....	36,000 00

Vermont—Dr. C. L. Allen, Secretary Board of Health.

The whole expenses of the Board shall not exceed \$1,500.00. In cases of extraordinary public peril, the Governor and Auditor may allow \$2,500.00.

Wisconsin—Dr. J. T. Reeve, Secretary State Board Health.

The sum total of our annual appropriation is five thousand five hundred dollars (\$5,500 00), or more precisely not exceeding in all four thousand five hundred dollars in any one year, and the sum of one thousand dollars annually, or so much as may be necessary, under the provisions of chapter 452, general laws of 1887. The only special contingent appropriation we have had thus far has been in anticipation of the advent of cholera. An appropriation was made of \$15,000.00 for the two years 1887 and 1888. No part of this contingent fund was used.

West Virginia—Dr. N. D. Baker, Secretary State Board of Health.

Our State Board is allowed \$1,500.00 for all expenses, Secretary's salary included. In addition, since the threatened invasion of cholera the Legislature has placed at our disposal an emergency fund of \$500.00.

The following graduated list is based on above reports, and shows the total amounts of appropriated revenue available in the year 1888 for general and special public health uses and prevention of epidemics by the various State Boards of Health in the United States. The asterisk (*) prefixed to the totals appropriated of certain of the States indicates additional sources of revenue or advantage, as epidemic funds practically without limit, fees from different sources, free printing, etc., etc.

Arranged by the Secretary of the State Board of Health of Missouri:

Massachusetts.....	\$111,300	Indiana.....	*5,000
Texas.....	61,000	Iowa.....	*5,000
Illinois.....	*49,000	Louisiana.....	*5,000
Mississippi.....	46,550	Pennsylvania.....	*5,000
Minnesota.....	29,000	Maine.....	5,000
New York.....	25,000	Kansas.....	4,500
New Jersey.....	*21,500	Ohio.....	4,000
Wisconsin.....	20,500	South Carolina.....	4,000
Michigan.....	*16,145	Tennessee.....	*3,000
Alabama.....	13,000	Rhode Island.....	*2,700
Maryland.....	13,000	Kentucky.....	*2,500
California.....	12,500	Vermont.....	2,000
Connecticut.....	*10,000	West Virginia.....	2,000
New Hampshire.....	*8,500	Delaware.....	350
North Carolina.....	*5,500		

REPORT OF PROCEEDINGS
OF THE
CONFERENCE OF LOCAL HEALTH OFFICIALS,
HELD BY INVITATION OF THE
STATE BOARD OF HEALTH OF MISSOURI,
At St. Louis, December 4th, 1888.

SANITARY DEFICIENCIES IN STATE—EPIDEMICS OF SMALL-POX—PROPOSED BILL FOR
CREATION OF LOCAL BOARDS—CONDITION OF VARIOUS
STATE BOARDS—RESOLUTIONS.

REPORT OF PROCEEDINGS

OF THE

CONFERENCE OF LOCAL HEALTH OFFICIALS.

The meeting was called to order at 10:30 a. m., at the Lindell Hotel, by Wm. Gentry, President of the State Board of Health.

On motion, Dr. J. R. Lemen was elected Secretary.

Dr. John Fee was unanimously chosen permanent Chairman.

In the absence of Hon. D. R. Francis, Mayor of St. Louis, Dr. G. F. Dudley, Health Commissioner of St. Louis, delivered a brief address of welcome in behalf of the city and the department he represented, assuring those present of the pleasure he derived from the occasion, and expressing his hearty sympathy in the work of promoting public health and the prevention of disease.

The following letter signed by Mr. V. C. Yantis, Private Secretary, addressed to the Secretary of the State Board of Health, under date of 16th ult., was read by the Secretary :

SIR—Yours of the 14th inst., with enclosure, is at hand. In reply I am directed by the Governor to say that he is in hearty sympathy with the purpose of the meeting on December 4th, and if possible will be present.

The call for the meeting was then read by the Secretary, as follows :

ST. LOUIS, November 13, 1888.

By authority of the State Board of Health an invitation is hereby extended to all local health authorities—county, municipal and town—in the State to meet at the Lindell hotel in this city, on Tuesday, the 4th of next December, at 10 a. m., for the purpose of conferring together in regard to necessary measures for the more effective control and prevention of dangerous diseases, the better organization of the public health service in the State, the more perfect unity and co-operation of State and local authorities to prevent the spread of pestilence; and, generally, to consider and deliberate on the sanitary needs of the State, and the legislation deemed necessary to accomplish the foregoing objects.

The trying experience of the South the past summer with yellow fever, the strong probability of the spread of small-pox during the coming winter, with the increasing prevalence of other fatal diseases, all strongly emphasize the need of early active precautionary and preventive measures on the part of the people of this State.

It is earnestly hoped that all health officials and other persons interested will be present and take part in the proceedings of the meeting.

WM. GENTRY. President.

After the adoption of a programme of business, a call of counties and cities for delegates and representatives was made, with the following results — Drs. Middelkamp and Bruere not appearing, however, until about noon :

Adair county—Dr. G. A. Goben, President Kirksville Board of Health, and member State Board of Health.

Audrain county—Dr. J. R. Fritts, Health Officer, Mexico.

Cooper county—Dr. C. J. Berger, Health Officer, Boonville.

Franklin county—Dr. O. L. Muench, Board of Health, Washington.

Jasper county—Mr. J. V. Hibbert, Chairman Board of Health, Joplin.

Jackson county—Dr. John Fee, Sanitary Superintendent, Kansas City ; Dr. J. D. Griffith, member State Board of Health.

Nodaway county—Mr. James B. Prather, member State Board of Health, Maryville.

Pettis county—Dr. J. W. Trader, Health Officer, Pettis county ; Maj. Wm. Gentry, President State Board of Health, Sedalia.

Randolph county—Dr. J. T. Cox, Health Officer, Moberly.

St. Charles county—Dr. John E. Bruere, President Board of Health, St. Charles.

Warren county—Dr. H. H. Middelkamp, Warrenton.

City of St. Louis—Dr. G. F. Dudley, Health Commissioner ; Dr. J. R. Lemen and Dr. R. C. Atkinson, members Board of Health ; Dr. F. J. Lutz, Chairman Special Committee on Sanitary Affairs, State Medical Association ; Dr. Geo. Homan, Secretary State Board of Health, and Dr. A. Merrell, member of the same Board.

Letters regretting inability to be present were read from Dr. J. M. Allen, of Liberty, and Hon. Ralph Walker, Mayor of Springfield.

The Chair then called, in regular order of counties, for suggestions and volunteer reports from county and city boards of health.

Dr. Goben responded for Adair, and stated that the cause which led to the organization of the Kirksville board was the outbreak of small-pox in Schuyler and Adair counties last winter. He described the confusion and alarm caused on account of the appearance of the disease and the unprepared condition in which the people found themselves when the emergency arose. The county court of Adair county would do nothing, claiming that there was no law authorizing the appointment of a board of health for the county. The Kirksville board was organized with Dr. F. A. Grove as health officer, and by vigorous

measures and extensive vaccination prevented the appearance of the disease in that place.

Dr. Fritts, Dr. Berger and Dr. Muench briefly detailed the sanitary situation in their respective cities.

Mr. Hibbert described at length the sanitary condition in Joplin, dwelling on the drainage problem, school hygiene and manner of enforcing isolation of patients with infectious diseases.

Dr. Fee dwelt on the various matters affecting public health in Kansas City, especially regulation of plumbing, house drainage, garbage disposal, municipal sewerage, the management of contagious and infectious diseases, school hygiene, etc. He was followed briefly by Dr. Griffith, who stated that there was not the semblance of a board of health in Jackson county outside of Kansas City.

Dr. Trader described the formation of the Pettis county board of health and his experiences in dealing with an epidemic of small-pox in that county. He also mentioned the various measures adopted by the city of Sedalia for the protection and promotion of public health.

Major Gentry followed, and mentioned the drainage and some other sanitary features of Sedalia; and then, speaking of the present condition of the State Board, and of the expectations entertained of it by some, he reminded them that for nearly four years the Board had not received a dollar from the State for public health work, but that the members, seeing the need of such a body and being unwilling to let it die, were paying a monthly assessment of five dollars each out of their own pockets to keep it going.

Dr. Cox described the working of the Moberly board, explaining that it was a result of the small-pox epidemic there last summer. He spoke of the unprepared condition of the city at that time to meet such a danger, and how, after a considerable loss of time, it was finally found necessary to send to St. Louis for Dr. Grindon to take charge of the isolation hospital and inspection and disinfection service.

Dr. Dudley spoke at length on matters coming within the notice of his department in St. Louis. City sewerage and house drainage, school hygiene and disposal of refuse were subjects mentioned. He dwelt especially on the importance of a successful vaccination of all children of school age, and suggested the need of a law for compulsory vaccination. He mentioned particularly a case of small-pox which came to town recently as showing how the disease is spread.

Dr. Lutz assured the meeting of his interest in the objects proposed, and was confident that in sanitary work and measures the public health officials would receive the hearty support of the medical profession, the members of the General Assembly and the people. As

chairman of the standing committee on Sanitary Affairs appointed by the State Medical association last spring, he would do all in his power to further the work of disease prevention. He decidedly approved the bill to create local boards of health.

At the conclusion of Dr. Lutz's remarks a recess was taken until 2 o'clock.

The session being resumed, Dr. Homan related the particulars of a case of small-pox in a young man from Kansas, mentioned by Dr. Dudley, who reached this city on the morning of the 2d inst. He was ill with what was thought to be chicken-pox when he left Manhattan, Kas., in charge of a friend. They traveled in a sleeper with other passengers, and were met at the train here by a relative who accompanied the sick man in a cab to a hotel. He went to bed and slept for a few hours, his sufferings from the disease having prevented rest on the train, and was then removed to the Sisters' hospital. There the disease was recognized as small-pox, and he was promptly removed to quarantine.

The possibilities of the spread of the disease in this way are beyond computation, and Dr. Homan said that every few days reports are received by him from different parts of the country mentioning the appearance of the disease, most of which are contracted in public or private schools or public conveyances.

He also presented an exhibit by counties of the condition of the State at large as regards local sanitary organization and administration. This information was received in response to a circular sent to the county clerk of every county last summer, and a careful scrutiny of their reports showed that there are probably less than twenty-five boards of health, actual and nominal, now in existence in the entire State.

Dr. Homan then read the bill proposed for discussion by the State Board of Health, as follows:

AN ACT to create county and other local boards of health, define their duties and powers, and provide for the compensation of their members and officers.

Be it enacted by the General Assembly of the State of Missouri, as follows:

Section 1. It shall be the duty of the county court of every county in Missouri to create a county board of health as hereinafter provided, after receiving notice so to do from the State Board of Health. The Secretary of the State Board of Health shall notify in writing the clerk of said court in any county where no county board of health exists, and thereupon at the next regular term after notification, said court shall proceed to create and establish a county board of health in the following manner: The county court, or a majority thereof, shall choose, by ballot, two reputable citizens who have been residents of the county for not less than five years next preceding their appointment, who shall not be holders of any State or other county

office, and whose residences shall be in different parts of the county. They shall hold office for a term of four years, unless removed for cause by a unanimous vote of the county court sitting in regular session, and they shall be required to take an oath to faithfully perform all the duties of their office.

Section 2. The two citizens appointed as aforesaid, together with the presiding justice of the county court, shall constitute and be a board of health, of which the presiding justice shall be ex officio president, and they shall have power to make rules for the government of the board and for the performance of all the duties hereinafter prescribed. The board shall meet at least once every three months, and the appointive members shall be entitled to receive a per diem compensation for actual attendance at such regular meetings, and at other meetings if such may be found necessary, the amount of which compensation shall be fixed by the county court and allowed and paid on its order out of the county treasury. The time and place of the meetings shall be fixed by the board, and it is hereby made the official duty of the prosecuting attorney of any county in which a board of health is created, as herein provided, to act as the legal adviser of such board, and as their counsel in any and all litigation wherein the exercise of their powers and performance of their duties as a board of health are concerned.

Section 3. It shall be the duty of a county board of health, created as provided by this act, to constantly exercise a watchful supervision over the health and sanitary interests of the people of the county, and to co-operate with other local boards and with the State Board in the promotion of public health, the prevention of disease, the proper reporting and registration of births and deaths and all other statistical reports required to be made to the State Board; and further, to assist in the sanitary survey of the county, and in the local performance of any general or special duty which is devolved by law upon the State Board of Health. A special meeting of the county board of health may be called by the president, upon a written request to that effect signed by the other members of the board.

Section 4. It shall be the duty of the county board of health, as soon after its creation and organization as possible, to appoint a health officer for the county, who shall be a legally qualified physician in good standing, and who shall have been a resident medical practitioner of that county for not less than three years next preceding his appointment. He shall give a bond conditioned for the faithful performance of his duty, the amount of which shall be fixed by the board, and said bond, after its approval by the board, shall be filed with the clerk of the county court. He shall hold his office for the period of two years, shall be eligible to reappointment, and shall be subject to removal for adequate cause, as determined after a fair hearing by the appointing power. Whenever a vacancy from whatever cause occurs in the office of health officer, if the said vacancy be not filled by the county board within sixty days after its occurrence, the State Board of Health may designate a physician of the county to act as such officer until the vacancy is regularly filled as provided in this section.

Section 5. It shall be the duty of the health officer as aforesaid to attend all meetings of the county board of health, and to act as its secretary and executive officer, keeping a correct account of its proceedings, conducting its correspondence, and performing such other duties as may be required by the board and this act. He shall take cognizance of and keep himself fully informed concerning the condition of general health among the people of the county, and the character and type of the disease or diseases prevalent or occurring therein; and he shall promptly report all ascertained facts in regard thereto to the county board of health, with such recommendations and suggestions in regard to means or measures for the

prevention or control of such disease or diseases as may be deemed by him necessary or expedient. Whenever, in his opinion, any dangerous disease threatens to become epidemic in any part of the county, upon his report to that effect, in writing, and upon his written request therefor, the presiding justice shall at once call a meeting of the county board of health, which shall promptly convene to consider the situation as reported by the health officer, and to adopt such measures to meet the threatened danger as they may deem necessary; and any action or measure so decided on shall be promptly reported to the State Board of Health. The health officer shall receive as compensation for his services a salary to be fixed by the county board of health, payable monthly on the order of the board to the county court, in the same manner as is provided by law for the payment of the salaries of other county officers. The minimum rate of such compensation shall be one cent per annum per capita of the county population, as ascertained by the latest State or United States census.

Section 6. It shall be the duty of the health officer to regularly make a monthly report of the condition of public health in his county, together with an abstract of the proceedings of the board of which he is secretary, to the State Board of Health, and to keep the State Board fully advised in regard to all matters relating to the sanitary interests of the people of his county. He shall promptly lay before the county board all communications received by him from the State Board of Health that may be intended for the information and guidance of that board, and to aid it in the performance of its duties as prescribed by law.

Section 7. No quarantine powers shall be exercised or restrictions on business or travel be imposed or enforced by any health officer, or county board of health or other local health organization, by which any other county or town would be injuriously affected, until a full report, from the board so desiring to act, of all circumstances that appear to render such restrictions or quarantine necessary, shall have been made to the State Board of Health, and the consent of that body to the proposed restrictions or quarantine has been obtained.

Section 8. The mayor of any incorporated city or town not already provided with a board of health or health officer shall, within thirty days after having been notified in writing so to do by the secretary of the board of health, nominate two citizens to serve as a board of health, whose qualifications and length of residence in said city or town shall be as prescribed in section 1 of this act. These nominations shall be subject to confirmation by the city council or board of aldermen of the city or town as aforesaid, at the next ensuing regular session of such body; and when confirmed, the citizens so appointed shall constitute, with the mayor, a board of health. The mayor shall be the president of the board, and the board may appoint a health officer, who shall possess all the qualifications and be subject to all the requirements as prescribed in sections 4 and 5 of this act. The duties of a board of health and health officer created as provided in this section shall be as prescribed in sections 3, 4, 5 and 6 of this act; but such monthly or annual reports as are required by law and this act to be made shall be made directly to the State Board of Health.

Section 9. The board of trustees of any village in the State of Missouri may appoint a health officer for the village, whose qualifications shall be as are hereinbefore prescribed. They shall fix his compensation and prescribe and regulate his official powers and duties. It shall be his duty to co-operate with and make official reports as may be required to the health officer of the county in which the village as aforesaid is situated.

Section 10. All acts and parts of acts inconsistent with this act are hereby repealed.

The measure was discussed by Drs. Goben, Trader, Bruere, Middelkamp, Griffith and Merrell and Major Gentry and Mr. Hibbert.

As a result, it was suggested that section 1 be changed so that county courts shall be required to create the boards of health at the next regular term after notification.

That section 2 be changed so that the meetings shall be held quarterly instead of monthly.

That the concluding sentences of sections 3, 4 and 5 be omitted.

After suggesting a few further verbal changes, the bill, on motion of Dr. Middelkamp, was approved, and unanimously recommended to the General Assembly of the State for enactment into law at the coming session.

Dr. Fee addressed the meeting on the importance of having a State sanitary code by which nuisances would be fully defined and the means of abating them clearly indicated. He cited instances of the inefficiency of present laws for the suppression of dangerous evils of this class.

The amendments proposed by the State Board of Health to the present Board of Health act were then considered. Dr. Homan explained the changes made, and said the purpose was in brief to make quarantine regulations more simple and effective, to facilitate and encourage the registration of births and deaths and other vital statistics, by providing compensation for the county officials charged with such duty, and requiring the State Board to make biennial reports to the Legislature, instead of annually, as now, to the Governor,—the Executive to have the right to call for special reports by the Board on public health matters at any time.

On motion, the proposed amendments were approved, and the act as changed was recommended to the Legislature for passage.

Dr. Homan submitted for the information of the meeting:

A tabulated statement exhibiting amounts of annual appropriations, and revenue from other sources, available to the use of State Boards of Health and health departments of the several States for 1888—compiled from official data collected by the Secretary of the State Board of Health of Missouri, December, 1888.

State.	Annual appropriation.	Contingent fund or special appropriations.	Remarks.
Alabama.....	\$3,000 00	\$10,000 00	
California.....	1,250 00	10,000 00	
Connecticut ...	5,000 00	No contingent fund of specific amount is provided, but in case of epidemic cholera as much may be spent as is deemed necessary. For investigation of pollution of streams and natural waters, \$5,000.	The cost of printing annual report of State board is provided for out of other funds.
Delaware	350 00	None.	
Illinois	9,000 00	\$40,000	A considerable additional revenue is derived from fees collected under the Med. Prac. act, amounting to some thousands yearly.
Indiana.....	5,000 00	None.	The printing of the annual report is paid for out of other funds.
Iowa	5,000 00	None.	The cost of printing report of Board is provided for out of other funds.
Kansas	4,500 00	None.	
Kentucky.....	2,500 00	No contingent fund, but counties cannot avoid cost of preventing spread of communicable disease. "This makes the appropriation for such purposes practically unlimited."	The cost of all printing is otherwise provided.
Louisiana.....	All revenue received from quarantine inspection fees is applied to the use of the Board.	None.	The sum of \$5,000 is received annually from the city of New Orleans for special sanitary work in that city.

TABULATED STATEMENT—Continued.

State.	Annual appropriation	Contingent fund or special appropriations.	Remarks.
Maine	\$5,000 00	None.	
Maryland	3,000 00	\$10,000 00.	
Massachusetts..	General ex- penses, \$9,- 300. Inspection food and drugs, \$10,- 000. Water sup- ply and drainage work, \$25,- 000 00.	\$50,000 00. For special report on sew- erage \$15,000 00. For protection of ice sup- plies, \$2,000.	
Michigan	\$6,000 00	9,145 00.	All cost of clerk hire, printing. (except annual report.) binding. etc., is paid out of other funds.
Minnesota	5,000 00	\$20,000 00. For control of infectious diseases of animals, \$3,- 000 00. For collection and compila- tion of vital statistics, \$1,000.	
Mississippi ...	1,550 00	\$20,000 00. Prevention of spread of contagious and infectious diseases in this State. \$25,000.	
New Hampshire	3,500 00	Nearly \$5,000 00.	Cost of printing and post- age is paid out of general fund.
New Jersey....	9,500 00	For Dairy Commissioner, \$10,000. For cattle diseases, \$2,- 000.	"With approval of Gov- ernor. Treasurer and Comptroller in case of epidemics can spend any amounts."
New York.....	20,000 00	For prevention of adultera- tion of food and drugs and regulation of stand- ard of illuminating oils, \$5,000.	
North Carolina.	2,500 00	\$3,000 00	In addition chemical work is paid for by the State, or rather furnished at the Agricultural Experi- ment station.
South Carolina.	2,000 00	2,000 00	
Ohio.....	4,000 00	None.	

TABULATED REPORT—Continued.

State.	Annual ap- propriation	Contingent fund or special appropriations.	Remarks.
Pennsylvania...	\$5,000 00	None.	All expenses for printing are met from another source.
Rhode Island..	2,000 00	Expenses of investigation or any sanitary work are paid from the general treasury. For this pur- pose about \$700 were spent in 1888. In case of emergency no limit of ex- penditure named.	
Tennessee.....	3,000 00	None.	The expenses of quarantine service are paid out of the general revenue.
Texas.....	25,000 00	\$36,000 00	For quarantine and all other purposes.
Vermont.....	1,500 00	None.	In cases of extraordinary public peril \$2,500 may be allowed.
Wisconsin.....	5,500 00	15,000 00	
West Virginia.	1,500 00	500 00	

Dr. Homan also submitted as supplemental to above :

A graduated list showing the total amounts of appropriated revenue available in the year 1888 for general and special public health uses and prevention of epidemics by the various State Boards of Health in the United States.

The asterisk (*) prefixed to the totals appropriated of certain of the States indicates additional sources of revenue or advantage, as epidemic funds without definite limit, fees from different sources, free printing, etc., etc. Arranged by the Secretary of the State Board of Health of Missouri.

Massachusetts.....	\$111,300	Indiana ...	*\$5,000
Texas	61,000	Iowa	*5,000
Illinois	*49,000	Louisiana	*5,000
Mississippi.....	46,550	Pennsylvania ..	*5,000
Minnesota	29,000	Maine.....	5,000
New York.....	25,000	Kansas.....	4,500
New Jersey	*21,500	Ohio.....	4,000
Wisconsin.....	20,500	South Carolina ..	4,000
Michigan.....	*16,145	Tennessee	*3,000
Alabama.....	13,000	Rhode Island....	*2,700
Maryland.....	13,000	Kentucky	*2,500
California.....	12,500	Vermont	2,500
Connecticut.....	*10,000	West Virginia....	2,000
New Hampshire....	*8,500	Delaware.....	350
North Carolina....	*5,500		

The communication was ordered made a part of the proceedings.

On motion of Dr. Trader, the Secretary was instructed to send a copy of the proceedings of the meeting to Dr. Lutz, with the request that it be presented by him to the Legislature.

Dr. Trader also offered the following :

Resolved, That we hereby indorse, and by this action would extend our thanks to our very efficient State Board of Health, who have, without remuneration from the State, and at great expense to themselves individually, attended to all the duties contemplated in the execution of our State law governing the Board of Health.

Adopted.

Dr. Merrell offered the following, which was unanimously adopted :

WHEREAS, The importance of all matters relating to the public health and the prevention of disease demands their consideration by committees of the General Assembly appointed for that purpose at the next session of that body ; therefore, be it

Resolved, That the Governor be respectfully requested to recommend in his message that the President of the Senate and the Speaker of the House shall appoint a standing committee on Sanitary Affairs in their respective branches of the Legislature, to whom all questions and matters concerning public health and sanitation shall be regularly referred for consideration and report at the ensuing session.

The following resolution was then offered and unanimously carried :

Resolved. That the proceedings of this meeting be printed, and copies of the same sent by the Secretary to the Governor, and to all the members of the General Assembly, together with copies of bills recommended to that body for passage.

Dr. Homan offered the following :

Resolved, That the Chairman appoint a committee to consider the advisability of forming a permanent organization of the local health officials of the State, with power to call a meeting next year at which a plan for such an organization shall be submitted by them, if such a course should be found expedient and desirable.

It was voted that the committee be composed of five members, and that Dr. Fee be chairman of the committee. The Chair remarked that he would notify those appointed by letter.

Adjourned.

J. R. LEMEN, Secretary.

SUPPLEMENT
TO THE
ANNUAL REPORT
OF THE
STATE BOARD OF HEALTH
FOR 1888.

COMPRISING

1. List of physicians and midwives registered in 1887 and 1888.
 2. Report on proceedings of the 14th annual meeting of the American Public Health association.
 3. Sundry papers.
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LIST OF NAMES OF

To whom certificates were issued in 1887 and 1888, arranged by counties

LIST OF PHYSICIANS TO WHOM CERTIFICATES WERE ISSUED

Name.	County.	Register No.	School	Residence and postoffice	Age	Nativity	Yrs prac	
							Total yrs	Yrs in Mo
Beach, Joshua....	Adair.....	3267	R	Kirksville.....				
Branham, Geo. H.		3309	R	Mercyville.....	35	Mo.	1	1
Davis, Andrew P....		3312	R	Kirksville.....	52	N. Y.	24	....
Heryford, H. W....		3367	R	Sperry.....	37	U. S.	2 $\frac{3}{4}$	2 $\frac{3}{4}$
Denny, James A....	Atchison.....	3274	P M	Hamburg, Ia....	30	Ohio.	9	....
Morgan, James M....	Barry.....	3324	P M	Cassville.....	29	U. S.	2	....
Sparkman, C. M....		3277	R	Washburn.....	29	Mo.	6	1 $\frac{1}{2}$
Algeo, Robert.....	Barton.....	3232	E	Pedro.....	58	Pa.	37	....
Allen, Orville R....		3216	R	Iantha.....	22	U. S.		
Bates, Smith L....	Bates.....	3203	R	Adrian.....	34	Ind.	9	....
Boyd, John R.....		3224	R	Butler.....	32	Ky.	1	1
Robinson, J. H....		3371	R	Worland.....	55	Tenn.	25	1
West, Thomas J....		3366	R	Rich Hill.....	25	Ills.	2 $\frac{3}{4}$	....
Chandler, H. S....	Bollinger.....	3311	R	Marble Hill...	37	U. S.	2	2
Bosserman, D. W....	Boone.....	3119	R	Columbia.....	30	Ohio.		
Galleher, Pierce....		3350	E	Centralia.....	33	"	8	....
Grubbs, John O....		3146	R	Deer Park.....	24	Ky.		
Hopper, Robert L....		3143	R	Columbia.....	22	U. S.		
Marshall, Moses....	Buchanan.....	3372	R	St. Joseph.....	29	"	2	2
West, Alonzo T....		3346	E	Conway, Ia....	33	Ia.	13	....
Aplin, William H....	Caldwell.....	3365	H	Hamilton.....	39	Ohio.	5	....
Dodge, Robert K....		3150	R	Kingston.....	23	Wis.	$\frac{1}{2}$	$\frac{1}{2}$
Powell, MacDonald		3113	R	Hamilton.....	25	Mo.	2	2
Waterman, Jas. A....		3171	R	Breckinridge....	24	Ky.		
Craig, Charles H....	Callaway.....	3138	R	Aux Vasse.....	29	Mo.		
Titterington, Robt.	Camden.....	3134	R	Stoutland.....	21	Mo.		
Malone, Richard W.	Cape Girardeau.	3132	R	Oak Ridge.....	32	Mo.		
Russell, Jams W....		3127	R	Jackson.....	21	Mo.		
Austin, Charles S....	Carroll.....	3238	R	Carrollton.....	24	Mo.		
Kunkel, Cooper D....		3273	R	Carrollton.....	38	U. S.	14	5
Neely, Samuel M....		3318	R	Roads.....	28	Ind.	5	....
Prewett, Granv. W.		3155	R	Norborne.....	37	U. S.	7	....
Delabar, Charles A.	Cass.....	3343	R	Drosley.....	35	Ga.	4	....
Tandy, Leonidas W.		3115	E	Creighton.....	37	U. S.	8	....
Billeter, William J.	Chariton.....	3169	R	Bynumville.....	22	Ills.		
Nanney, William N.		3107	R	Newcommer.....	33	Ind.	9	....
Derz, Jacob.....	Clark.....	3263	H	Farmington, Ia.	48	Ger.	10	2
Henry, Hughley M.		3290	R	Wayland.....	23	Ills.		
Glasscock, Saml. S.	Clay.....	3218	R	Excelsior Springs	25	U. S.		
Harrison, Sam'l J....		3204	R	Excelsior Springs	28	Conn		
Collins, Almer M....	Clinton.....	3221	R	Cameron.....	42	U. S.	10	....
Franke, John.....		3274	R	Major.....	30	Ills.	7	....
Hill, William H....		3280	E	Plattsburgh.....	23	Mo.		
Love, Frank S....	Cole.....	3299	R	Jefferson City....	25	Mo.		
Porth, Joseph P....		3128	R	Jefferson City....	22	Mo.		
Stiffler, Geo. W....	Cooper.....	3139	R	Clark's Fork....	28	Mo.		
Jamison, R. E....	Crawford.....	3312	R	Steeleville.....	29	U. S.	5	5
Martin, Zachariah.	Dade.....	3302	R	Greenfield.....	38	U. S.	8	....

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School	Residence and postoffice.	Age.	Nativity.	Years practice	
							Total yrs	Yrs in Mo
Padget, John W.	Dallas	3331	R	Louisburg	25	Mo.	4	3
Lytle, Elmer E.	DeKalb	3120	R	Maysville	25	U. S.		
Cawthon, Jas. P.	Dunklin	3341	Bot	Kennett	57	Tenn.	36	12
Lawrence, Sam'l C.		3348	R	Cotton Plant.	21	Ky.	3	
Marcum, R. C.		3228	E	Cotton Plant.	52	Tenn.	30	12
Rosenthal, Moses.		3223	R	Kennett.	29	Pa.	8	3
Fitzgerald, Wm. P.	Franklin	3149	R	Shotwell.	25	Mo.		
Fowler, Joseph J.		3235	H	Washington.	23	U. S.		
Muench, Otto L.		3207	R		26	"		
Curry, Silas F.	Gentry	3259	E	Darlington.	55	N. Y.	15	
Miller, Lawson E.		3333	R	Stanberry.	22	Mo.	1½	1½
DeBar, Geo. O'B.	Greene	3358	R	Springfield.	37	Ill.	13	2
Marsh, Richard		3272	E		60	U. S.	29	
Sidman, Wm. D.		3253	R	"	27	"	3	
Webster, A. Ellen.		3292	PM	"	25	"	1	
Williamson, A. C.		3314	H		45	Ohio.	19	
Williamson, Geo. B.		3227	R	Ash Grove.	21	U. S.		
Davis, James C.	Grundy	3245	R	Trenton.	24	Mo.	1	1
Humphreys, T. H.	Harrison	3364	E	Thomas, Iowa	24	Ia.	4	1
Holcomb, Thos. J.	Henry	3188	R	Clinton	21	Ark.		
Johnson, James T.		3373	R	"	51	Ky.	24	9
Findley, Wm. J.	Holt	3297	R	New Point.	31	U. S.	1½	1½
Tracy, James C.		3293	R	Mound City	21	Neb.		
Young, Oscar D.	Howard	3170	R	Sebree.				
Davis, Wm. B. H.	Howell	3252	E	Mountain View.	31	U. S.	2	
Anderson, Victor.	Jackson	3282	R	Kansas City	21	U. S.		
Barber, William D.		3265	R	"	21	U. S.		
Beach, Elizabeth		3230	E	" Kas.	48	Can.	1½	
Bellows, George E.		3286	R	"	25	U. S.		
Bennett, John C.		3201	H	"	29	U. S.	4	
Blough, Edward W.		3301	H	"	30	Penn.	3	
Brainard, Benj. F.		3200	R	"	23	U. S.	1	
Brown-Beadle, N.A.		3177	R	"	34	Mich.	7	
Breuehl, Julius.		3214	R	"	33	Ger.	3	
Childs, Allis M.		3198	R	"	28	U. S.	1	
Clark, Charles E.		3237	R	"	23	U. S.	1½	1½
Colt, Emily S.		3222	H	"	48	U. S.	8	4
Dabney, Thomas S.		3281	R	"	37	Miss.	8	
Dibble, LeRoy.		3260	R	"	43	U. S.	18	2
Donaldson, Andrew		3164	R	"	47	U. S.	16	
Doyle, Theodore		3279	E	"	41	U. S.	20	
Evans, John M.		3373	R	"	45	Ohio	23	
Greene, H. L.		3347	R	"	30	Iowa	7	
Greene, Robert L.		3242	R	"	23	Ky.		
Gaines, James W.		3360	R	"	25	Ky.	1½	
Haas, Arthur L.		3231	R	Sweet Home	28	U. S.	3	
Hamersly, Wm. H.		3338	R	Kansas City	27	U. S.	5	
Harris, Mary E.		3298	R	"	45	U. S.	1	1
Harrison, George E.		3339	E	"				
Harvey, William F.		3249	R	"	61	Ohio	36	
Heywood, George.		3355	R	"	26	U. S.		
Hood, Bruno.		3363	R	"	27	Ger.	1½	
Inen, Frank J.		3307	R	"	24	U. S.		
Inen, William C.		3308	R	"	28	U. S.	4	
Jones, Fred R.		3243	R	"	24	Ohio		
Judson, E. W.		3226	E	"	34	N. Y.	12	2
McDaniel, Alex. S.		3117	R	"	39	Mo.	3	3
McLure, Neil		3268	H	"	32	Can.	7	

CERTIFICATES WERE ISSUED IN 1887—Continued.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record
Date of certificate.	Basis of certificate, diploma or license.		
Sept. 29....	Missouri Medical college, St. Louis.....	Mch. 6, '83.....	
March 3....	Rush Medical college, Chicago, Ills.....	Feb. 15, '87.....	
Oct. 19....	Botanic Medical college, Memphis, Tenn.....	Mch. 1, '61.....	
Nov. 3....	Medical dept. University of Tennessee, Nashville..	Feb. 24, '86.....	
May 3....	Eclectic Medical institute, Cincinnati, Ohio.....	Feb. 24, '66.....	
April 28....	Missouri Medical college, St. Louis.....	Mch. 4, '80.....	
March 7....	Missouri Medical college, St. Louis.....	Mch. 3, '87.....	
May 16....	Homœopathic Med. Col., Univ. of Mich., Ann Arbor	July 1, '86.....	
April 16....	Miami Medical college, Cincinnati, Ohio.....	Mch. 9, '87.....	
June 6....	American Medical college, St. Louis.....	June 1, '87.....	
Oct. 10....	St. Joseph Medical college, Mo.....	Feb. 24, '86.....	
Nov. 21....	Missouri Medical college, St. Louis.....	Mch. 11, '74.....	
June 28....	Eclectic Medical institute, Cincinnati, Ohio.....	Jan. 27, '58.....	
June 6....	Medical college of Ohio, Cincinnati.....	Mch. 7, '84.....	
July 26....	Physio-Medical institute, Chicago, Ills.....	Mch. 18, '86.....	
Sept. 6....	Pulte Medical college, Homœopathic, Cincinnati O.	Mch. 4, '79.....	
May 3....	Missouri Medical college, St. Louis.....	Mch. 3, '87.....	
May 24....	Bellevue Hosp., Medical college of N. Y. city, N. Y.	Mch. 14, '87.....	
Nov. 29....	Iowa Medical college, Eclectic, Des Moines.....	June 12, '84.....	
April 9....	Missouri Medical college, St. Louis.....	Mch. 3, '87.....	
Dec. 6....	University of Louisville, Medical department, Ky.	Jan. 31, '62.....	
Aug. 26....	College of Physicians and Surgeons, Keokuk, Ia.....	Mch. 1, '87.....	
Aug. 26....	University of Louisville, Medical department, Ky.	Mch. 1, '87.....	
Mch. 18....	College of Physicians and Surgeons, Keokuk, Ia.....	Mch. 1, '87.....	
June 6....	Bennett Col. of Eclectic Med. and Surg., Chicago, Ill.	Mch. 29, '87.....	
July 13....	University of Kansas City, Medical department....	Mch. 17, '87.....	
June 28....	Kansas City Medical college.....	April 13, '87.....	
May 10....	Kansas City hospital, College of Medicine.....	Mch. 15, '86.....	
July 19....	Col. of Physicians and Surgeons, city of N. Y., N. Y.	May 12, '85.....	
April 9....	Chicago Homœopathic Medical college, Ills.....	Mch. 6, '84.....	
August 26..	.....	Mch. 6, '84.....	
April 9....	College of Physicians and Surgeons, Chicago, Ills..	Feb. 23, '86.....	
April 9....	Dept. of Med. and Surg., University of Michigan..	Mch. 27, '78.....	
April 20....	Julius-Maximilian School of Med., Wurzburg, Bav.	Jan. 20, '87.....	
April 9....	Kansas City hospital College of Medicine.....	Mch. 15, '86.....	
May 16....	Rush Medical College, Chicago, Ills.....	Feb. 10, '86.....	
Sept. 21....	Hahneman Medical college, Chicago, Ills.....	Feb. 28, '81.....	
July 1....	Medical department University of La., New Orleans	Mch. 20, '79.....	
June 6....	Bellevue Hospital Medical college, N. Y. city, N. Y.	Mch. 23, '71.....	
March 14....	Medical dept. Wooster University, Cleveland, Ohio	Feb. 26, '74.....	
June 28....	American Medical college, St. Louis.....	Jan. 25, '76.....	
Dec. 15....	Starling Medical college, Columbus, Ohio.....	Mch. 1, '64.....	
October 27..	University of Pennsylvania, Dept. of Med., Phila..	Mch. 14, '79.....	
May 24....	Bellevue Hospital Medical college, N. Y. city, N. Y.	Mch. 14, '87.....	
Nov. 21....	Medical college of Ohio, Cincinnati.....	Mch. 12, '86.....	
May 10....	Rush Medical college, Chicago, Ills.....	Feb. 22, '81.....	
October 19..	University of Pennsylvania, Dept. of Med., Phila..	April 15, '83.....	
August 26..	Kansas City Hospital College of Medicine.....	Mch. 15, '86.....	
October 19..	Bennett Col. of Eclectic Med. and Surg., Chicago, Ills	Mch. 23, '80.....	
May 31....	Indiana Medical college, Indianapolis.....	Feb. 28, '73.....	
Nov. 16....	Harvard University Medical school, Boston, Mass	June 29, '87.....	
Nov. 29....	Col. of Physicians and Surgeons, city of N. Y., N. Y.	May 12, '85.....	
August 26..	Medical college of Ohio, Cincinnati.....	Mch. 8, '87.....	
August 26..	.....	Mch. 8, '83.....	
May 24....	Ft. Wayne College of Medicine, Indiana.....	Mch. 1, '87.....	
May 3....	American Medical college, St. Louis.....	May 12, '75.....	
Feb. 23....	Bellevue Hospital Medical college, N. Y. city, N. Y.	Mch. 1, '70.....	
June 28....	Homœopathic Medical college, University of Mich..	Mch. 26, '78.....	

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School	Residence and postoffice.	Age	Nativity	Years practice	
							Total yrs	Yrs in Mo
Magoon, James N.	Jackson	3327	R	Kansas City	38	Mass.	14	....
Morgan, John M.		3275	R	"	58	Irel'd	25	....
Mather, V. W.		3370	H	"	40	Va.	14	....
Mathis, Caleb E.		3186	R	"	28	U. S.	3	....
Merriman, Clay S.		3283	R	"	26	U. S.	....	....
Merwin, Geo. M. D.		3208	H	"	42	Penn.	5	2
Minckler, Philo E.		3250	R	"	42	Can.	20	....
Newcomb, Emile P.		3166	E	"	40	U. S.	4	....
Palmer, Philip C.		3362	R	"	36	U. S.	3 ¹ / ₄	....
Perkins, John W.		3178	R	"	27	Mass.	2 ³ / ₄	....
Pettijohn, Julius B		3248	R	"	40	Ind.	15	....
Purcell, McDaniel.		3305	R	"	28	Va.	....	....
Reynolds, Oliver K		3351	R	"	54	Ohio.	30	....
Taylor, John J.		3361	R	"	45	Eng.	20	....
Webb, Chris. C.		3106	H	"	38	Tenn.	10	....
Wells, Sarah F.		3357	R	"	47	U. S.	18	....
Wilkes, William O.		3244	R	"	24	Tenn.	2	2
Yorke, Fred. H.		3116	R	"	36	Eng.	2	....
Gooding, Bert A.	Jasper	3270	R	Jasper City	22	U. S.	1	1
Greene, John P.		3114	R	Carthage.	40	Ohio.	17	1
Guinn, Charles B.		3221	R	"	....	....	....	....
King, Wm. H. K.		3325	R	"	47	Penn	20	....
Lezenby, Benj. F.		3258	E	"	28	Ohio	....	....
McCambridge, P.		3337	R	"	40	Scotl.	16	....
Myers, Overton P.		3251	R	Oronogo	28	U. S.	2	2
Seaman, Warren L		3246	R	Carthage.	33	U. S.	10	6
Buchanan, James B		3182	R	"	36	U. S.	11	....
Singleton, C E.		3323	E	"	50	Ind.	9	....
Snyder, Andrew R.		3315	R	Joplin.	28	U. S.	3	....
Willim, William J.		3205	R	"	34	Penn.	6	....
Deaderick, James S	Jefferson	3335	R	DeSoto.	36	Mo.	7 ¹ / ₂	3
Gorham, Charles C		3135	R	"	24	Mich.	....	....
Hasse, Herman E.		3112	R	"	51	Ger.	26	....
Burr, Laban A.	Johnson	3317	R	Fayetteville.	25	Ills.	....	....
Schofield, Linn J.		3276	R	Warrensburg	26	Mo.	....	....
McKim, H. Walton	Knox	3192	R	Newark.	21	Mo.	....	....
Smith, James H.	Lawrence.	3175	P M	Mt. Vernon.	41	Ills.	3	....
Stark, Alexander J.		3147	R	Phelps.	24	Mo.	....	....
Haycraft, Ste. E.	Lewis	3241	R	Steffenville	38	Mo.	1	....
Bergen, Samuel R.	McDonald	3316	R	Pineville.	62	Ind.	36	6
Alexander, Jas. M.	Macon.	3105	R	Ettle	....	....	....	....
McCulley, Thos. M.		3239	R	Sue City.	24	U. S.	....	....
Shepherd, John D.		3160	R	Meadville.	38	Md.	4	....
Smith, George W.		3158	R	Macon City.	24	U. S.	....	....
Amos, Robert W.	Maries	3202	R	Vichy	26	U. S.	1	1
Grep, Henry J		3140	R	Vienna	23	Mo.	....	....
Mason, Thomas A.	Marion.	3300	R	Palmyra	43	U. S.	15	....
Crawford, Jas. W.	Mercer	3321	R	Princeton.	34	Ky.	5	2
Purcell, Edmund C.	Monroe.	3222	R	Clapper	36	U. S.	1	1
Hunter, William B.	Morgan	3306	R	Excelsior	36	Ind.	4	....
Kauffman, Samuel		3124	R	Versailles	24	Penn.	....	....
Coffman, J. A.	Newton	3374	R	Neosho	37	Iowa.	5	....
Smith, John R.		3118	P M	"	51	Ky.	30	30
Heryford, Win. B.	Nodaway	3264	R	Wilcox	24	Mo.	1	1
Martin, F. M		3352	H	Maryville	37	Ills.	13	....
Miller, John A.		3296	R	Valentine.	31	....	6	....

CERTIFICATES WERE ISSUED IN 1887—Continued.

Certificate of State Board of Health.			Date of diploma.	Certificate filed for record.....
Date of certificate.	Basis of certificate, diploma or license.			
Sept. 29....	Kansas City Hospital College of Medicine.....	Mch. 15, '87.		
June 28....	University of Pennsylvania. Dept. of Med., Phila...	Mch. 14, '67.		
Dec. 6	Pulte Medical college, Homeopathic, Cincinnati, O	Mch. 6, '83.		
April 9....	Rush Medical college, Chicago, Ills.....	Feb. 19, '84.		
July 13....	University of Kansas City. Medical department, Mo	Mch. 17, '87.		
April 16....	Kansas City Hospital College of Medicine.....	Mch. 15, '87.		
May 31....	University of Bishop's coll. Fac. of Med., Mon., Can	April 5, '83.		
March 18....	Kansas City Hospital College of Medicine.....	Mch 15, '86.		
Nov. 21....	Rush Medical college, Chicago, Ills.....	Feb. 19, '84.		
April 9....	Harvard University Medical school, Boston, Mass..	June 30, '86.		
May 31....	Central College of Phys. and Surg. Indianapolis Ind	Mch. 2, '75.		
August 26..	University of Penn., Dept. of Medicine, Phila.....	May 1, '85.		
Nov. 10....	Missouri Medical college, St. Louis.....	Feb. 27, '59.		
Nov. 21....	Rush Medical college, Chicago, Ills.....	Jan. 25, '67.		
Jan. 10....	University of Maryland, School of Med., Baltimore	Mch. 3, '81.		
Nov 16....	New York Med. College for Women, New York city	Mch. 23, '69.		
May 24....	University of Kansas City, Medical department....	Mch. 12, '85.		
Feb. 19....	Rush Medical college Chicago, Ills.....	Feb. 17, '85.		
June 28....	College of Physicians and Surgeons, Keokuk, Iowa.	Mch. 1, '87.		
Feb. 9....	Miami Medical college, Cincinnati, Ohio.....	Feb. 28, '70.		
April 28....	Medical dept., Vanderbilt Univ., Nashville, Tenn..	Mch. 1, '87.		
Sept. 29....	Rush Medical college, Chicago, Ills.....	Feb. 26, '78.		
June 6....	American Medical college, St. Louis.....	June 1, '87.		
Oct. 10....	Missouri Medical college, St. Louis.....	Mch. 2, '76.		
May 31....	University of Kansas City, Medical department....	Mch. 11, '86.		
May 24....	Chicago Medical college, Ills.....	Mch. 18, '75.		
April 9....	Louisville Medical college, Ky.....	Feb. 26, '76.		
Sept. 21....	Eclectic Medical institute, Cincinnati, Ohio.....	June 3, '84.		
Sept. 6....	Bellevue Hospital Medical college, New York City.	Mch. 9, '85.		
April 16....	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 28, '82.		
Oct. 10....	St. Louis Medical college.....	Mch. 7, '80.		
March 7....	St. Louis Medical college.....	Mch. 3, '87.		
Feb. 3.....	Medical Faculty of Julius Maximilian university, Wurzburg, Bavaria.....	Jan. 19, '61.		
Sept. 12....	Beaumont Hospital, Medical college, St. Louis....	Mch. 1, '87.		
June 28....	University of Louisville, Medical department, Ky.	Mch. 1, '87.		
April 9....	College of Physicians and Surgeons, Keokuk, Ia...	Mch. 1, '87.		
April 9....	Physio-Medical institute, Cincinnati, Ohio.....	Mch. 3, '84.		
March 7....	Missouri Medical college, St. Louis.....	Mch. 3, '87.		
May 24....	Quincy College of Medicine, Ills.....	Mch. 10, '86.		
Sept 12....	College of Physicians and Surgeons, Keokuk, Ia...	Feb., 1852.		
Jan. 7....	Medical dept' University State of Mo., Columbia.	June 3, '86.		
May 16....	Missouri Medical college, St. Louis.....	Mch. 3, '87.		
March 12...	College of Physicians and Surgeons, Keokuk, Io...	Mch. 1, '87.		
March 12...	College of Physicians and Surgeons, Keokuk, Io...	Mch. 1, '87.		
April 9....	Nashville Medical college, Tenn.....	Feb. 22, '87.		
March 7....	Missouri Medical college, St. Louis.....	Mch. 3, '87.		
August 26..	Central col. of Physicians and Surgeons, Indianapolis	Mch. 2, '75.		
Sept. 12....	Northwestern Medical college, St. Joseph.....	Feb. 26, '87.		
April 28....	Missouri Medical college, St. Louis.....	Mch. 3, '87.		
August 6....	Dep't of Medicine and Surgery university of Mich..	June 26, '84.		
March 7....	Missouri Medical college, St. Louis.....	Mch. 3, '87.		
Dec. 15....	University of Nebraska College of Medicine, Lincoln	Mch. 18, '86.		
Feb. 28....	Physio-Medical institute, Cincinnati, O.....	Mch. 3, '84.		
June 28....	College of Physicians and Surgeons, Keokuk, Io...	Mch. 2, '86.		
Nov. 10....	Hahneman Medical college, Chicago, Ills.....	Feb. 22, '77.		
August 26..	College of Physicians and Surgeons, Keokuk, Io...	Mch. 1, '81.		

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School.	Residence and postoffice.	Age.	Nativity.	Years practice	
							Total yrs.	Yrs in Mo
Street, Merrell H.	Nodaway.....	3240	P M	Gaynor City	37	Ark.	15	....
Tunstall, E. L.	Oregon.....	3206	R	Mammoth Sp, Ark	22	U. S.	11	....
Wolf, Joseph M.	.....	3304	R	"	46	U. S.	21	....
Byars, Henry T.	Pemiscot	3213	R	Caruthersville ...	21	Penn.	....	....
Hudgings, M. Hugh	.....	3334	R	Cottonwood Point	27	Mo.	....	....
Adams, John W.	Pettis.....	3219	R	Sedalia	21	Mo.	....	....
Durand, Charles S.	.....	3179	H	"	27	Iowa	3	3
Ferguson, Wilson J.	.....	3217	R	Hughesville	21	U. S.	....	....
Harris, Douglas N.	.....	3180	R	Lamonte.	33	Md.	....	....
Larch, Eliam C. L.	.....	3359	R	Sedalia	53	Mo.	32	32
Smith, James D.	.....	3295	R	Lamonte.	27	....	....	....
Sherman, George H	Pike	3173	R	Ashley.....	24	Mo.	....	....
Cossins, S. W.	Polk	3262	R	Half Way.....	25	U. S.	2	2
Hopkins, W. S.	.....	3332	R	Fair Play	25	"	3	3
Wrinkle, Thomas D	.....	3234	R	Polktown	29	"	....	....
Webster D. P.	Pulaski	3278	E	Dixon	38	"	7	....
Downing, Wm. L.	Putnam	3233	R	Unionville	25	"	1	1
Dobson, Daniel A.	Randolph.....	3181	R	Jacksonville	38	Mo.	15	15
Dysart, William P.	.....	3142	R	Higbee.....	21	U. S.	....	....
Firth, C. C.	.....	3320	R	Moberly.....	38	....	6	....
Greene, Myrtle.	.....	3313	E	.....	28	Ohio.	....	....
Levick, George G.	.....	3153	R	Levick's Mill.	31	Mo.	....	....
Swigart, Joshua	.....	3356	R	Higbee.....	44	Md.	20	6
Grimes, Robert H.	Ray	3148	R	Knoxville.....	24	Mo.	....	....
Hamilton, George E	.....	3165	R	Orrick	25	....	....	....
Cotton, Lee W.	Reynolds	3144	R	Cynthia	26	U. S.	....	....
Cape, Leander W.	St. Francois	3174	R	Bonne Terre	26	Mo.	....	....
Bayer, Herman	Ste. Genevieve..	3212	R	River Aux Vases	36	Ger.	....	....
Kenner, Edwin B.	.....	3185	R	St. Marys.....	24	Mo.	....	....
Powell, Charles H.	St. Louis.....	3133	R	Normandy	23	"	....	....
Smith, George P.	.....	3287	R	Pattonville	23	"	....	....
Fleet, John B.	Saline	3257	E	Gilliam	27	Va.	....	....
Parsons, John W.	.....	3187	R	.....	23	Mo.	....	....
Smith, J. Herbert.	.....	3209	R	Shackelford	23	"	....	....
Stouffer, John M.	.....	3210	R	Marshall .....	....	....	....	....
Stevens, Harbin J.	Scotland.....	3319	E	Memphis.....	38	U. S.	11	....
Koons, C.	Stoddard	3111	E	Gray's Ridge	38	U. S.	11	....
Kessenger, John C.	Sullivan	3145	R	Milan	42	U. S.	18	18
Sullivan, James M.	.....	3141	R	Humphreys	36	U. S.	....	....
Stuart, Jasper C.	Texas	3176	R	Stanford	28	....	....	....
Berry, James A.	Vernon	3336	R	Greene Springs	27	Can.	....	....
Stanhope, L. E.	.....	3196	H	Nevada	26	Mo.	....	....
Highfill, Messer	Webster	3137	R	Marshfield	28	"	....	....
Garrison, Isaac B.	Worth.....	3110	R	Denver	53	Penn.	31	28
McKinley, W. E.	.....	3271	R	Grant City	24	U. S.	....	....
Adams, Wellington	City of St. Louis.	3266	R	2829 Olive	30	N. Y.	6	....
Babcock, John L.	.....	3229	R	3930 Morgan	27	"	1	....
Badger, Sophia F.	.....	3181	H	1449 E. Grand Av.	41	Eng.	....	....
Bauer, Joseph L.	.....	3285	R	515 Pine	33	N. Y.	13	6
Benerman, Louis C.	.....	3328	R	4474 Easton Av ..	28	Pa.	....	....
Bennet, Edward C.	.....	3345	R	116 South 14th	25	N. Y.	....	....
Blank, Charles F.	.....	3123	R	1323 S. B'dway ..	21	Mo.	....	....
Brudewold, C. L.	.....	3199	R	2716 Hickory	21	Pa.	....	....
Bryan, John H.	.....	3191	R	2654 Locust	28	Mo.	....	....
Buchanan, J. E.	.....	3154	R	2120 Olive	28	"	....	....
Buse, Benj. E.	.....	3254	E	312 Gratiot	32	"	....	....
Cale, George W.	.....	3193	R	3107 Taylor Av ..	21	"	....	....
Chambers, Wm. T.	.....	3161	R	2413 Elliot Av	26	Ohio	4	....

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No..	School.....	Residence and postoffice.	Age.....	Nativity.....	Years practice	
							Total yrs.	Yrs in Mo
Dagley, Elias L ...	City of St. Louis	3349	R	1300 Wash'n Av..	42	Ind.	16	...
Disse, Richard H...		3326	R	1206 Monroe.....	21	Mo.	...	...
Ehrhardt, R. T....		3289	R	1229 Monroe.....	22	Ills.	2	...
Etavard, R. T....		3255	E	310 North 11th....	24	Fr'ce	...	...
Eyermann, C. H...		3172	H	1012 South 8th....	30	Ger.	...	...
Fleming, Albert W.		3197	R	City hospital	27	Pa.	...	...
Freelich, Hans....		3354	R	1314 Olive.....	40	Switz	16	2
Fuller, Frederick F.		3211	R	11 N. B'dway.....	66	Conn	40	10
Grennan, M. A....		3294	R	1309 Wash'n Av..	50	Irel'd	26	23
Hahn, Roland.....		3368	R	1504 S. 11th.....	35	Ger.	10	...
Hammond John H.		3353	H	1235 Wash'n Av..	39	Ohio	...	...
Hanser, Rudolf....		3156	R	1811 S. Sth.....	23	Mass.	...	...
Harvey, Horace G..		3195	R	City ho-pital.....	24	Mo.	...	...
Heller, Theodore F.		3254	R	2322 Cass Av.....	28	N. Y.	4	...
Hennerich, Jos. P.		3125	R	221 Florida.....	28	Mo.	...	...
Hill, William P....		3344	R	3117 Easton Av...	29	"	2	...
Hornsby, John A..		3369	R	Easton & Gr. Avs	27	"	7	7
Hunt, Henry M....		3159	R	Whitehall, Ills...	35	N. H.	...	...
Jones, Charles W..		3225	R	2338 Clark Av....	29	Ill.	...	...
Keller, William...		3330	R	515 Pine.....	44	Ger.	22	1
Kennel, Archie C..		3220	R	919 W. Jeff. Av..	23	Mo.	...	...
Kerley, Richard M.		3168	R	4034 Peck St.....	45	"	18	18
Kessler, Edward H.		3130	R	1615 Grattan St..	23	"	...	...
Kilpatrick, Rob't H		3152	R	913 N. 23rd.....	24	"	...	...
Kingsbury, Willis V		3194	R	1203 Monroe.....	22	Ill.	...	...
Kretschmar, Oscar.		3153	R	2812 Walnut.....	31	Mo.	...	...
Kriege, Henry W..		3329	R	1434 Wright.....	28	Ill.	2	...
Larew, John T....		3215	R	1505 Lef'gwell Av	36	Ky.	11	11
Lindsley DeC. B...		3236	R	3514 Lucas Av...	21	Mo.	...	...
Lowry, William N.		3303	R	2838 Walnut.....	27	Ky.	5	...
McCune, Thomas E.		3189	R	City hospital	24	Mo.	...	...
Meyer, Edmund Y.		3261	R	1014 N. Jeff.....	23	"	...	...
Morrill, George H.		3310	H	2809 Wash. Av...	46	N. H.	22	12
Neuhoff, Fritz....		3151	R	2309 Chestnut....	23	Ill.	...	...
Nixon, Emory E...		3288	H	2809 Wash. Av..	49	W. Va	20	...
Noble, Edward....		3291	E	722 Market.....	47	Eng.	10	...
Olcott, Arthur W..		3331	R	1515 Lucas place.	24	Mo.	...	...
Phillips, Helen P...		3269	H	2904 Pine.....	38	Pa.	5	5
Pierce, Harry M...		3190	R	2731 Stoddard....	25	Ill.	...	...
Rembe, Reinhard..		3126	R	1701 Olive.....	23	Ger.	...	...
Riecke, John W...		3284	R	1904 Taylor Av...	23	Mo.	...	...
Sensenev, Edgar M.		3129	R	3029 Glasgow Pl..	31	Va.	...	...
Smith, Ellsworth S.		3122	R	3558 Pine.....	23	Mo.	...	...
Steinmetz, F. R. B.		3136	R	820 N. Beaumont.	32	Ger.	...	...
Sullivan, James E..		3162	R	2000 O'Fallon....	29	Mo.	...	...
Taylor, Rodney C..		3346	H	3921 Cook.....	22	"	...	...
Thomas, Nathan D.		3167	R	3604 N 11th.....	35	Va.	...	...
Williams, B. Brown		3102	E	Mona house.....	72	N. C.	43	...
Williams, Fred. G.		3157	R	1211 Poplar.....	35	Pa.	...	...
Worley, Luther F..		3163	R	1831 Biddle.....	27	Ill.	...	...

Duplicated certificates upon proof of loss of original were issued to J. H. Crowswhite

CERTIFICATES WERE ISSUED IN 1887—Continued.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record....
Date of certificate.	Basis of certificate, diploma or license.		
Nov. 3....	University of Louisville, Medical department, Ky..	Mch. 1, '87.	.....
Sept. 29....	St. Louis College of Physicians and Surgeons.....	Mch. 10, '87.	.....
July 26....	St. Louis Medical college.....	Mch. 4, '86.	.....
June 6....	American Medical college, St. Louis.....	June 1, '87.	.....
March 18....	Homœopathic Medical College of Missouri, St. Louis	Mch. 17, '87.	.....
April 9....	Missouri Medical college, St. Louis.....	Mch. 3, '87.	.....
Nov. 10....	State Board of Examiners, Cantons, Switz, Zurich.	Mch. 1, '70.	.....
April 16....	Geneva Medical college, New York	1842 or 1843.	.....
Aug. 26....	Pennsylvania Medical university, Philadelphia, Pa.	April. 1851.	.....
Dec. 6....	University of Bonn, Germany	July 27, '76.	.....
Nov. 10....	Hahneman Medical college, Chicago, Ill....	Feb. 24, '87.	.....
March 12....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
April 9....	Missouri Medical college, St. Louis.....	Mch. 3, '87.	.....
June 6....	College of Physicians and Surgeons, New York City	May 15, '83.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
Oct. 27....	University of Pa., department of medicine, Phila ..	May 1, '85.	.....
Dec. 6....	St. Louis Medical College.....	Mch. 5, '80.	.....
March 12....	St. Louis College of Physicians and Surgeons	Mch. 10, '87.	.....
May 3....	Beaumont Hospital Medical college, St. Louis.....	Mch. 1, '87.	.....
Sept. 29....	St. Louis College of Physicians and Surgeons	Mch. 4, '84.	.....
April 28....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
March 18....	Jefferson Medical college, Philadelphia, Pa	Mch. 12, '69.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
March 7....	Missouri Medical college, St. Louis.....	Mch. 3, '87.	.....
April 9....	St. Louis College of Physicians and Surgeons.....	Mch. 10, '87.	.....
March 9....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
Sept. 29....	St. Louis Medical college.....	Mch. 6, '85.	.....
April 20....	Bellevue Hospital, Medical college, New York City	Sept. 1, '75.	.....
May 16....	St. Louis Medical college.....	Mch. 3, '87.	.....
August 26....	Kentucky School of Medicine, Louisville.....	June 28, '82.	.....
April 9....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
June 6....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
August 26....	Western Homœopathic Medical college, Cleveland, O	Feb. 28, '61.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
July 26....	Miami Medical college, Cincinnati, Ohio	Feb. 29, '72.	.....
July 26....	Indiana Eclectic Medical college, Indianapolis	Feb. 19, '86.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
June 28....	Homœopathic Medical college of Missouri, St. Louis	Mch. 17, '87.	.....
April 9....	St. Louis Medical college.....	Mch. 3, '87.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
July 13....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
March 7....	St. Louis Medical college.....	Mch. 3, '87.	.....
March 7....	Beaumont Hospital Medical college, St. Louis.....	Mch. 1, '87.	.....
March 12....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
Oct. 19....	Homœopathic Med Col, Univ. of Mich., Ann Arbor	June 30, '87.	.....
March 18....	St. Louis College of Physicians and Surgeons	Mch. 10, '87.	.....
Jan. 24....	Eclectic Medical institute, Cincinnati, Ohio	Feb. 8, '60.	.....
March 12....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....
March 12....	Missouri Medical college, St. Louis	Mch. 3, '87.	.....

of Lafayette Co , L. L. Campbell of Bates Co., and J. H. Tinsley of Laclede Co.

LIST OF MIDWIVES to whom certificates were issued

Name.	County.	Register No...	Residence and postoffice.	Age.....	Nativity.....	Years practice	
						Total yrs	Yrs in Mo
Anel, Franciska.....	City of St Louis.	464	6104 South 7th ...	34	Ger...	.....	.....
Bauer, Kathrina.....		451	833 Manch'ter r'd	27	"	.....	.....
Beck, Katherine.....		457	3639 Cousins Av...	32	Mo...	.....	.....
Berg, Mariae.....		443	2011 Penrose.....	29	"	.....	.....
Berron, Salome.....		460	1038 Marion.....	24	Als'e.	.....	.....
Breidenbach, Hermine.		447	2401 South 2d.....	21	Mo...	.....	.....
Bremer, Augusta L....		452	2020 North 9th....	33	Ger...	.....	.....
Bonnioli, Carlotta....		468	923 Market.....	41	Aus..	.....	.....
Cruson, Antonie.....		444	723 North 14th....	53	Prus..	15	.....
Dinkelkamp, Elizabeth.		467	2422 Elliott.....	24	Ger...	.....	.....
Erbe, Louisa.....		445	1910 Morgan.....	59	"	25	4
Gasthorf, Josephine...		470	1913 Linton Av...	27	Mo...	.....	.....
Goebel, Alice.....		450	2029 South 3d....	24	"	.....	.....
Grotzinger, Justine...		456	311 Primm.....	33	Als'e.	4	.....
Hassel, Anna M.....		453	2000 DeKalb.....	40	Ger...	.....	.....
Hermann, Maria.....		455	1716 South Menard	32	"	.....	.....
Huber, Elizabeth.....		473	3164 Lami.....	21	Mo...	.....	.....
Jansen, Emilie.....		465	2022 O'Fallon St..	33	Ger...	.....	.....
Korte, Anna.....		462	2838 Missouri Av.	30	"	.....	.....
Neuhaus, Maria.....		471	1953 North Market	27	Mich.	.....	.....
Putscher, Lina.....		469	832 Chontean Av.	32	Wis..	.....	.....
Rose, Minnie.....		466	2908 Chouteau Av.	28	Mo...	.....	.....
Rosat, Lina.....		472	2116 Lucas Av....	27	Switz	.....	.....
Ryndak, Mary.....		463	1012 North 12th...	22	Hun..	.....	.....
Schiereck, Alice.....		441	819 North 6th....	24	Ills..	.....	.....
Schmidt, Virginie.....		461	1523 South B'dway	27	Fr'ce.	.....	.....
Schnell, Pauline.....		449	1408 Biddle.....	31	Ger...	.....	.....
Schnuck, Fredrika....		442	1304 Monroe.....	30	Ills..	.....	.....
Seebeck, Emma.....		448	2101 McNair Av...	24	Mo...	.....	.....
Stetzner, Clara.....		459	167 Anna.....	29	"	.....	.....
Stoffregen, Henrietta A		446	9th and Salisbury.	26	Ger...	.....	.....
Vahle, Anna F.....		454	1225 Monroe.....	32	"	.....	.....
Weinard, Frances.....		458	702 Gratiot.....	31	"	5	5

LIST OF PHYSICIANS TO WHOM CERTIFICATES WERE ISSUED

Name.	County.	Register No...	School.....	Residence and postoffice.	Age ..	Nativity.....	Years practice	
							Total yrs	Yrs in Mo
Henshaw, Chas. E.	Adair.....	3668	R	Kirksville.....	44	U. S.	16	.....
Iles, Urban G.....		3427	R	Brashear.....	24	"	.....	.....
King, Julia A.....		3683	H	Kirksville.....	48	Ills.	15	.....
McCarty, Milburn.....		3544	E	"	59	Ky.	36	.....
Jeffries, Clarence O.	Andrew.....	3504	R	Savannah.....	35	U. S.	.....	.....
Jeffries, Elmer C....		3507	R	Nodaway.....	.....	.....	.....	.....
Elder, Alfred.....	Atchison.....	3535	R	Phelps City.....	45	Ind.	9	6
Kynett, L. James..		3621	R	Hamburg, Ia.....	46	Ohio.	23	10

by the State Board of Health during the year 1887.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record....
Date of certificate.	Basis of certificate, diploma or license.		
June 21....	St. Louis School of Midwives.....	June 15, '87	.....
June 14....	Newland's College of Midwifery, St. Louis.....	June 4, '87	.....
June 17....	St. Louis School of Midwives.....	June 15, '87	.....
Jan. 26....	Missouri School of Midwifery, St. Louis.....	Dec. 16, '86	.....
June 21....	St. Louis School of Midwives.....	June 15, '87	.....
June 14....	Newland's College of Midwifery, St. Louis.....	June 4, '87	.....
June 14....	Missouri School of Midwifery, St. Louis.....	June 8, '87	.....
Dec. 6....	Newland's College of Midwifery, St. Louis.....	Dec. 3, '87	.....
April 28....	School of Midwifery, University of Vienna, Austria.....	Aug. 1, '79	.....
Dec. 6....	Newland's College of Midwifery, St. Louis.....	Dec. 3, '87	.....
April 28....	Royal School of Midwifery, Gottingen, Germany.....	April 5, '62	.....
Dec. 15....	St. Louis School of Midwives.....	Dec. 7, '87	.....
June 14....	Newland's College of Midwifery, St. Louis.....	June 14, '87	.....
June 14....	Midwifery Institute of Colmar, Alsace-Lorraine, Ger.....	Aug 18, '83	.....
June 14....	Missouri School of Midwifery, St. Louis.....	June 8, '87	.....
June 14....	Missouri School of Midwifery, St. Louis.....	June 8, '87	.....
Dec. 30....	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	.....
June 28....	St. Louis School of Midwives.....	June 15, '87	.....
June 21....	St. Louis School of Midwives.....	June 15, '87	.....
Dec. 16....	St. Louis School of Midwives.....	Dec. 7, '87	.....
Dec. 15....	St. Louis School of Midwives.....	Dec. 7, '87	.....
July 19....	Newland's College of Midwifery, St. Louis.....	Dec. 10, '85	.....
Dec. 15....	Newland's College of Midwifery, St. Louis.....	Dec. 3, '87	.....
June 21....	St. Louis School of Midwives.....	June 15, '87	.....
Jan. 3....	Missouri School of Midwifery, St. Louis.....	Dec. 16, '86	.....
June 21....	St. Louis School of Midwives.....	June 15, '87	.....
June 14....	Newland's College of Midwifery, St. Louis.....	June 4, '87	.....
Jan. 17....	Missouri School of Midwifery, St. Louis.....	Dec. 16, '86	.....
June 14....	Newland's College of Midwifery, St. Louis.....	June 4, '87	.....
June 21....	St. Louis School of Midwives.....	June 15, '87	.....
Jan. 14....	Newland's College of Midwifery, St. Louis.....	June 4, '87	.....
June 14....	Missouri School of Midwifery, St. Louis.....	June 8, '87	.....
June 17....	St. Louis School of Midwives.....	June 15, '87	.....

BY THE STATE BOARD OF HEALTH DURING THE YEAR 1888.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record....
Date of certificate.	Basis of certificate, diploma or license.		
Nov. 16....	University of City of New York, medical dep't.....	Feb. 20, '72.	.....
March 10....	Rush Medical college, Chicago, Ills.....	Feb. 21, '88.	.....
Dec. 22....	Hahneman Medical college, Chicago, Ills.....	Feb. 20, '83.	.....
May 9....	American Medical college, Cincinnati, O.....	Feb. 14, '86.	.....
April 10....	University of Kansas City, Medical department.....	Mch. 17, '88.	.....
April 10....	St. Joseph Medical college.....	Feb. 22, '88.	.....
April 27....	Northwestern Medical college, St. Joseph.....	Feb. 23, '88.	.....
August 30..	Jefferson Medical college, Philadelphia, Pa.....	Mch. 11, '76.	.....

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School	Residence and postoffice.	Age	Nativity	Years practice	
							Total yrs.	Yrs in Mo.
Taylor, Eugene P.	Atchison	3465	R	Rockport	31	Mo.		
Toalson, Geo. F.	Andrain	3575	R	Mexico	23	U. S.		
Winans, Theo. H.		3576	H		35			
Ducker, James O.	Barry	3642	R	Eureka Spr., Ark.	37	Ark.	12	7
Dunkeson, W. L.		3476	R	Purdy	24	Mo.		
Pyle, Charles W.	Bates	3489	H	Rich Hill	26	U. S.	6	
Davis, S. Oliver	Benton	3494	R	Warsaw	23			
Mowell, John W.		3485	R		27	Penn.		
Sample, George H.	Bollinger	3518	R	Patten				
Talley, Jesse R.		3521	R	Marble Hill	26	U. S.		
Bradford, Geo. H.	Boone	3573	R	Ashland	23	Mo.		
Fretwell, Wm. J.		3498	R	Sturgeon	21			
Cloud, Selustias E.	Buchanan	3542	R	St. Joseph	36	Ind.	6	1
French, Benj. F.		3554	H		45	Ohio	12	
Groat, Frank A.		3673	R		45	U. S.	5	
Kaiser, John M.		3612	R		29	Ger.	5	
Longshore, Anna M.		3682	R		54	Penn.	30	
Morton, Daniel		3657	R		24	Ky.	1½	
Riley, Joseph B.		3541	R		33	Ind.	6	
Smith, George H.		3393	R		25	U. S.	4½	
Carter, Jacob	Butler	3669	R	Poplar Bluff	50	U. S.	12	
Graves, James E.		3532	R	Neelyville	33	Ky.		
Waters, James W.	Callaway	3567	R	Fulton	21	U. S.		
Thrift, Hamilton	Cape Girardeau	3654	R	Stoderville	46	Va.	15	
Newland, Chas. W.	Carroll	3609	R	Bogard	35	U. S.	8	
Russell, Eldon J.		3410	R	Carrollton	23	Mo.		
Jones, W. David	Carter	3664	R	Grandin	28	U. S.	2	
Amerman, Chas. E.	Cass	3497	R	Harrisonville	25	U. S.	2	2
Brierly, John B.		3626	R	Gunn City	27	Mo.		
Himrod, David G.		3643	R	Harrisonville	50	U. S.	27	
Taylor, J. McNeil		3522	R		34	U. S.	8	1
Bryan, Cyrus P.	Chariton	3568	R	Rothville				
Bryan, Robert E.		3395	R	Keytesville				
Dewey, James T.		3463	R		37	U. S.		
Bridges, James R.	Clark	3617	R	Kahoka	24	U. S.		
Doss, Sylvester E.		3666	R	Wyaconda	26	U. S.		
Gabbert, Benj. F.		3472	R	Mt. Sterling, Io.	44	U. S.	18	3
Harris, Hilburn W.		3418	R	Winchester	24	Ills.		
Kirkpatrick, W. J.		3470	R	Mt. Sterling, Io.	26	U. S.	4	1
Beattie, Thomas R.	Clay	3530	R	Excelsior Springs	37	Mo.		
Beck, L. Warner		3608	E		51	U. S.	18	
Beeson, Henry O.		3495	R	Birmingham	34	Wis.	8	
Dagg, Hiram M.		3503	R	Harlem	37	U. S.	14	
Eversole, Charles		3616	R	Missouri City	36	Ohio	5	
Rowell, Haynie		3628	R	Kearney	27	Mo.		
Dove, Joseph D. F.	Clinton	3610	R	Cameron	21	Va.		
Snyder, Joseph H.		3606	E		34	N. Y.	34	18
Enloe, John S.	Cole	3572	R	St. Thomas	30	Mo.		
Humpert, Geo. A.		3579	R	Jefferson City	27		2	
Compton, Fred. W.	Cooper	3639	R	Pleasant Green	26		2½	
Culp, Amos H.		3442	H	Otterville	27	Va.	1	
Russell, George A.		3524	H	Boonville	27	U. S.		
Schaeffer, Henry W.		3557	H		56	Ger.	31	
Williams, Porter E.		3571	R	Bunceton	21	U. S.		
Wallace, Jas. T.	Dade	3493	R	Greenfield	39	Can.	9	
Phillips, Irvin	Dallas	3479	R	Lead mines	30	Mo.		

Date of certificate.	Basis of certificate, diploma or license.	Date of diploma.	Certificate filed for record.....
March 27....	Louisville Medical college, Kentucky.....	Feb. 16, '88.
June 21....	Missouri Medical college, St. Louis.....	March 6, '88
June 21....	Chicago Homœopathic Medical college, Chicago, Ills.	Feb. 21, '88
October 9....	Jefferson Medical college, Philadelphia, Pa.....	Mch. 10, '77
March 30....	Kansas City Medical college.....	Mch. 13, '88
April 4....	Homœopathic Med. Dept., State univ. Iowa City, Ia.	Mch 4, '84.
April 4....	Missouri Medical college, St. Louis.....	Mch 6, '88.
April 2....	" " " " " "	Mch. 6, '88.
April 13....	St. Louis College of Physicians and Surgeons.....	Mch. 5, '88.
April 23....	Louisville Medical college, Kentucky.....	Feb. 16, '88.
June 18....	St. Louis College of Physicians and Surgeons.....	Mch. 3, '88.
April 6....	Missouri Medical college, St. Louis.....	Mch. 6, '88.
May 3....	Northwestern Medical college, St. Joseph.....	Feb. 23, '88.
May 30....	Hahnemann Med. college and hospital, Phila., Pa.	Mch. 10, '80
Dec. 6....	Woman's Hospital Medical college, Chicago, Ills..	Feb. 27, '83.
Aug. 21....	Northwestern Medical college, St. Joseph.....	Feb. 26, '86.
Dec. 22....	Woman's Medical college of Pennsylvania, Phila...	Dec. 30, '51
Oct. 30....	University of Louisville, Medical department, Ky..	Mch. 1, '87.
May 3....	Northwestern Medical college, St Joseph.....	Feb. 23, '88.
Feb. 17....	St. Joseph Medical college.....	Feb. 28, '84.
Nov. 16....	Medical College of Ohio, Cincinnati.....	Feb. 28, '77.
April 27....	Louisville Medical college, Kentucky.....	Feb. 16, '88.
June 12....	Missouri Medical college, St. Louis.....	Mch. 6, '88.
Oct. 30....	Missouri Medical college, St. Louis.....	Mch. 2, '77.
August 16....	Medical College of Ohio, Cincinnati.....	Mch. 1, '82.
March 9....	St. Louis Medical college.....	Mch. 8, '88.
Nov. 12....	Chicago Medical college.....	Mch. 29, '87.
April 6....	Iowa College of Physicians and Surg., Des Moines.	Mch. 1, '87.
Sept. 5....	Missouri Medical college, St. Louis.....	Mch. 6, '88.
Oct. 12....	Vermont Academy of Medicine, Castleton.....	June 18, '61.
April 23....	St. Louis College of Physicians and Surgeons.....	Mch. 3, '88.
June 12....	Jefferson Medical college, Pennsylvania.....	Mcn. 10, '55.
Feb. 17....	Jefferson Medical college, Pennsylvania.....	Mch. 30, '82
March 23....	Missouri Medical college, St. Louis.....	Mch. 6, '88.
August 24....	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 28, '88.
Nov. 16....	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 28, '88.
March 27....	College of Physicians and Surgeons, Keokuk, Ia...	Mch. 1, '87.
March 9....	Missouri Medical college, St. Louis.....	Mch. 6, '88.
March 27....	College of Physicians and Surgeons, Keokuk, Ia...	Mch. 1, '87.
April 27....	Missouri Medical college, St. Louis.....	Mch. 6, '88.
August 14....	Bennett Coll. of Eclectic Med. and Surg., Chicago.	Mch. 23, '86.
April 6....	Kansas City Medical college.....	Mch. 5, '86.
April 10....	Western Reserve University Medical Department. Cleveland, O.....	Mch. 9, '79.
August 21....	Medical College of Indiana, Indianapolis.....	Mch. 1, '83.
Sept. 11....	Med. Dep't University of Vermont, Burlington.....	July 17, '88.
August 16....	Rush Medical college, Chicago.....	Feb. 21, '88.
August 10....	Syracuse Medical college, eclectic, New York.....	Feb. 16, '54.
June 18....	Hospital College of Medicine, Med. Dept. Central University, Louisville, Ky.....	June 13, '88
June 21....	St. Louis Medical college.....	Mch. 5, '84
October 9....	University of Kansas City, Med. Dep't.....	Mch. 15, '88
March 16....	Louisville Medical college, Kv.....	Feb. 16, '88
April 23....	Hahneman Medical college, Chicago, Ills.....	Mch. 14, '88
June 5....	Med. Fac. Freidrich Wilhelm Univ., Halle, Prussia.	April 4, '56
June 18....	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88
April 4....	Cincinnati College of Medicine and Surgery, Ohio..	Feb. 25, '79
April 2....	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School.	Residence and postoffice.	Age.	Nativity.	Years practice	
							Total yrs.	Yrs in Mo
McCarthy, Charles.	Daviess	3605	R	Gallatin	27	N. Y.	1 ²	....
Strasser, Nellie A.		3513	H	Winston	39	Va.	9	....
Massie, Jas. B.	DeKalb	3464	R	Winslow	31	Mo	3	....
Phelps, John Q.		3594	R	Fairport	27	W. Y. T	2	....
Saunders, Louis E.		3537	R	Stewartsville	22	Mo.	....	....
Chaney, Jason	Dunklin	3436	R	Senath	35	....	11	11
Chatham, Alfred D		3548	R	Caruth	40	Ky.	4	....
Harrison, Arthur S		3487	R	Clarkton	23	Mo.	1	....
Hudspath, P. S.		3547	R	Holcomb	....	....	....	....
Kinsolving, Floyd.		3517	R	Kennett	25	U. S.	....	....
Landreth, Wm. F.		3462	K	Senath	42	Tenn.	18	....
Shivers, John A.		3562	R	Malden	26	....	2	....
Lindley, J. Scott.	Gentry	3381	R	Darlington	25	U. S.	....	....
Smith, Felix G.		3403	R	Albany	....	....	....	....
Spence, Wm. E.		3390	R	King City	25	Pa.	....	....
Beal, Edward L.	Greene	3599	R	Springfield	24	U. S.	....	....
Davis, Frank E.		3555	R	....	27	....	3	....
Evans, Albus P.		3623	H	"	29	"	1 ¹	....
Farnsworth, D. B.		3601	R	"	39	"	11	....
Jackson, Jesse L.		3559	R	"	24	"	....	....
Dilley, Charles F.	Grundy	3637	R	Trenton	48	Va.	30	....
Banta, C. C.	Henry	3670	R	Clinton	28	U. S.	....	....
Vance, William H.		3424	R	....	53	Ohio.	27	....
Wisely, Leonard A.		3404	R	Norris	58	Va.	20	20
Bever, Sumner S.	Holt	3449	R	Oregon	25	U. S.	2	2
Hoffman, Louis R.		3578	H	Corning	30	Mo.	4 ¹	....
Davis, Robert P.		3635	R	Forest City	....	....	....	....
McGauhey, J. H.		3478	R	Mound City	27	U. S.	....	....
Petty, James W.		3502	R	Maitland	28	Iowa	1	1
Schwartz, G. W.		3481	R	Mound City	....	....	....	....
Payne, Thomas J.	Howard	3464	R	Fayette	25	Mo.	....	....
Farrar, Francis M.	Iron	3457	R	Ironton	23	"	2	1 ²
Smith, John R.		3443	R	"	23	"	....	....
Abeles, Edward.	Jackson	3397	R	Kansas City	32	"	8	....
Aikin, N. Jewett.		3592	R	"	48	N. Y.	26	1
Ayres, Samuel.		3652	R	"	30	Ky.	5	....
Beckman, John J.		3563	R	"	36	U. S.	12	....
Bingham, Calvin C.		3538	E	"	59	"	25	....
Boggs, Joseph D.		3600	R	"	54	"	15	....
Burchard, Easton.		3391	R	"	22	"	1 ¹	....
Cline, Alice.		3512	H	"	32	Ohio.	....	....
Cline, Permelia A.		3511	H	"	45	"	....	....
Corrie, George.		3560	R	"	30	U. S.	....	....
Crowell, Homer C.		3660	R	"	36	"	13	....
Elliott, James M.		3467	R	"	30	"	2	....
Ewing, Fayette C.		3475	R	"	....	La.	4	....
Ewing, Frank M.		3663	R	"	31	U. S.	6	....
Fulton, Charles M.		3598	R	"	29	"	5	....
Graves, Helen J.		3680	R	"	34	"	5	....
Gray, J. Hamilton.		3613	H	"	33	"	6	....
Hayes, James P.		3545	R	"	36	Ire'ld	10	8
Herbst, John E.		3471	R	"	60	Pa.	34	....
Hooper, Asa.		3656	E	"	36	Ills.	12	....
Hopkins, Guy S.		3506	R	"	51	U. S.	26	....
Horigan, Joseph A.		3651	R	"	24	D. C.	3	....
Hovey, Frank H.		3629	R	"	27	U. S.	2 ¹	....
Hutton, Ernst Le R.		3686	R	"	29	"	3	3

CERTIFICATES WERE ISSUED IN 1888—Continued.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record....
Date of certificate.	Basis of certificate, diploma or license.		
August 10...	Medical department University of Buffalo, N. Y...	Feb. 28, '88	.....
April 13....	Kansas City Hospital College of Medicine.....	Mch. 15, '88	.....
March 23....	St. Joseph Medical college.....	Feb. 22, '88	.....
July 24....	Kentucky School of Medicine, Louisville.....	June 28, '88	.....
April 27....	Northwestern Medical college, St. Joseph.....	Feb. 23, '88	.....
March 13....	Kentucky School of Medicine, Louisville.....	Mch. 1, '77	.....
May 16....	Hospital Medical college, Evansville, Ind.....	Feb. 29, '84	.....
April 4....	Missouri Medical college, St. Louis.....	Mch. 6, '88	.....
May 16....	Med. Dept. Vanderbilt University, Nashville, Tenn	Mch. 1, '88	.....
April 13....	University of Louisville, Medical department, Ky...	Mch. 1, '88	.....
March 23....	University of Nashville, Medical department, Tenn	Mch. 1, '70	.....
June 8....	Memphis Hospital Medical college, Tenn.....	Feb. 26, '86	.....
Jan. 10....	Beaumont Hospital Medical college, St. Louis.....	Mch. 1, '87	.....
March 2....	St. Joseph Medical college.....	Feb. 23, '88	.....
Jan 30 ....	.....	Feb. 24, '87	.....
July 30	Jefferson Medical college, Philadelphia, Pa.....	April 4, '88	.....
May 30....	Western Reserve Univ., Med. dep't, Cleveland, O.	Mch. 9, '87	.....
August 30..	Hahneman Medical college and hospital, Chicago...	Feb. 26, '87	.....
August 4....	Rush Medical college, Chicago, Ills.....	Feb. 21, '77	.....
June 5....	Medical department, University of Nashville, Tenn	Mch. 1, '88	.....
October 9...	Rush Medical college, Chicago, Ills.....	Jan. 21, '63	.....
Nov. 27....	Vanderbilt University, Med. dep't, Nashville, Tenn.	Mch. 1, '88	.....
March 10....	Medical College of Indiana, Indianapolis.....	Feb. 28, '70	.....
March 2....	Jefferson Medical college, Philadelphia, Pa.....	Mch. 15, '59	.....
March 19....	Northwestern Medical college, St. Joseph.....	Feb. 23, '88	.....
June 21....	Chicago Homœopathic Medical college, Ills.....	Mch. 6, '84	.....
Sept. 29....	Northwestern Medical college, St. Joseph.....	Feb. 23, '88	.....
March 30....	Missouri Medical college, St. Louis.....	Mch. 6, '88	.....
April 10....	University of Louisville, Medical department, Ky.	Mch. 1, '88	.....
April 2....	Northwestern Medical college, St. Joseph.....	Feb. 24, '87	.....
March 27....	St. Louis Medical college.....	Mch. 8, '88	.....
March 22....	.....	Mch. 4, '86	.....
March 16....	Beaumont Hospital Medical college St. Louis.....	Mch. 15, '88	.....
Feb. 17....	Harvard University Medical school, Mass.....	June 26, '78	.....
July 20....	Cincinnati College of Medicine and Surgery, Ohio...	Feb. 3, '65	.....
October 26..	University of Louisville, Medical department, Ky.	Feb. 27, '83	.....
June 8....	Columbus Medical college, Ohio.....	Feb. 29, '76	.....
May 3....	Eclectic Medical college, city of New York, N. Y.	April 8, '86	.....
July 30....	Kansas City Medical college.....	Mch. 13, '88	.....
Jan 30	Kentucky School of Medicine, Louisville.....	June 22, '86	.....
April 13....	Kansas City Hospital College of Medicine.....	Mch. 15, '88	.....
April 13....	.....	Mch. 15, '88	.....
June 5....	Medical College of Virginia, Richmond.....	Mch. 30, '88	.....
Nov. 5....	Medical dep't University of Vermont, Burlington.	July 1, '75	.....
March 27....	Missouri Medical college of St. Louis.....	Mch. 2, '86	.....
March 30....	Jefferson Medical college, Philadelphia, Pa.....	Mch. 29, '84	.....
Nov. 12....	.....	Mch. 13, '82	.....
July 30....	Kentucky School of Medicine, Louisville.....	July 1, '83	.....
Dec. 18....	Woman's Medical College of Pennsylvania, Phila..	Mch. 15, '83	.....
August 21..	Hahnemann Medical college, Chicago, Ills.....	Feb. 19, '78	.....
May 9....	Medical Dep't Univ. of Louisiana, New Orleans...	Mch. 15, '78	.....
March 27....	Pennsylvania Medical college, Philadelphia.....	Mch. 4, '54	.....
October 30..	American Medical college, St. Louis.....	Jan. 25, '77	.....
April 10....	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 13, '66	.....
October 19..	Medical Department Columbian University, D. C.	Mch. 15, '88	.....
Sept. 15....	Department of Med. and Surg. university of Mich..	July 1, '86	.....
Dec. 22....	Rush Medical college, Chicago, Ills.....	Feb. 19, '84	.....

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School.	Residence and postoffice.	Age.	Nativity.	Years practice	
							Total yrs.	Yrs in Mo
Kimmell, Emma J.	Jackson	3400	....	Kansas City	...	U. S.	28	...
Kisner, Thos. J.	...	3589	E	"	56	U. S.	4	...
Kuhn, William F.	...	3624	R	"	39	N. Y.	18	...
LeBeau, Caroline	...	3586	H	"	58	Mo.	14	...
Logan, James M.	...	3667	R	"	44	Ohio	2	...
McCoy, Walter T.	...	3485	R	Greenwood	29	U. S.	3	2
Marshall, Jane E.	...	3679	R	Kansas City	32	"	10	4
Marsters, C. Lena	...	3527	R	"	44	"	6	...
Martin, Charles B.	...	3509	R	"	35	N. H.	11	...
Massie, J. McD.	...	3376	R	"	33	Va.	11½	...
Mears, John	...	3675	R	"	33	Mass.	5	...
Melvin, Ransom D.	...	3580	R	"	29	U. S.	23	2
Morrow, L. B.	...	95	R	"	58	Ohio	5	1
Nickerson, Ed. J.	...	3533	R	"	46	U. S.	28	...
Olmsted, Charles C.	...	3552	H	"	48	"	5	...
Pearse, Herman E.	...	3658	R	"	29	"	40	6
Phillips, Wm. C.	...	3634	R	"	65	Mo.	5	...
Punton, John	...	3529	R	"	33	Eng.	10	...
Smolt, Charles F.	...	3399	R	"	35	U. S.	20	...
Stahl, Moses S.	...	3688	R	"	60	Pa.	6	...
Stall, Robert J.	...	3620	E	"	31	U. S.	4	...
Stevens, James F.	...	3653	R	"	29	"	20	...
Swearingen, B. V.	...	3566	R	"	22	"	19	...
Tefft, Herbert K.	...	3549	R	Topeka, Kas.	39	Ills.	12	11
Tyler, John B.	...	3384	R	Kansas City	43	Conn.	16	...
VanWagner, E. J.	...	3627	R	"	35	Ger.	32	...
Von Quast, Ernst.	...	3641	R	"	26	U. S.	17	3
Wahl, Edward D.	...	3681	R	"	44	Can.	34	2
Walsh, Robert	...	3380	R	"	55	"	8	...
Willson, Hugh McG	...	3546	R	"	33	U. S.	17	...
Wilder, Annie.	...	3631	R	"	38	"	5	...
Wilder, H. L. G.	...	3677	R	"	24	Ger.	11	...
Wolf, Isidor	...	3614	R	"	40	U. S.	13	...
Baker, Albert T.	Jasper	3564	R	Zincite	42	Eng.	17	3
Breen, James	...	3685	R	Joplin	38	Ind.	10	...
Chenoweth, Wm. S.	...	3676	R	"	32	U. S.	34	2
Jones, Benj. F.	...	3684	R	Hallowell, Kas.	29	"	8	...
Trenkler, Oscar	...	3604	H	Carthage	43	U. S.	17	...
Utter, John C.	...	3611	R	Webb City	33	"	5	...
Walton, Christ. C.	...	3662	R	Avilla	28	Ky.	1	1
Woodward, J. H.	...	3428	E	Cartersville	21	Mo.	2	...
Hamel, George F.	Jefferson	3477	R	DeSoto	26	U. S.	6	3
Keaney, Wm. M.	...	3510	H	DeSoto	30	Ohio	21	...
Braecklein, Wm. A.	Lafayette	3454	R	Concordia	51	U. S.	10	...
Crist, Joseph C.	...	3644	R	Lexington	28	"	10	10
Gosewisch, W. R.	...	3520	R	Lexington	31	U. S.	3	3
Hamisfar, F. N.	...	3504	H	Lexington	37	Mo.	...	...
Marton, Brayton A.	Lawrence	3596	R	Aurora	31	U. S.	...	...
Stevenson, F. S.	...	3574	R	Aurora	22	"	...	...
Titterington, J. M.	...	3500	R	Marionville	34	Ind.	...	...
Brown, Thomas F.	Lewis	3456	R	Durham	...	...	...	...
Corley, Joseph B.	Lincoln	3468	R	Millwood	...	...	...	...
Ridings, Overton H	Linn	3569	R	Meadville	...	...	...	...
Thompson, John D.	...	3455	R	Bucklin	...	...	...	...
Henderson, Wm. A.	Livingston	3437	R	Chillicothe	...	...	...	...
Norris, Edwin J.	...	3516	R	Ludlow	...	...	...	...
Patton, Chas. W.	...	3501	R	Sampsell	...	...	...	...

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No.	School.	Residence and postoffice	Age	Nativity.	Years practice	
							Total yrs	Yrs in Mo
Coffelt, Theodore A.	McDonald.....	3406	R	Pea Ridge, Ark..	32	Mo.	4	....
Goff, William L....	.....	3565	R	Tiff City.....	22	U. S.	....	....
Lay, Elbert C.....	.....	3394	R	Bethpage.....	35	Tenn.	3	....
Petit, Julius C....	.....	3388	R	Indian Springs...	47	Mo.	25	15
Quarles, Thomas R.	.....	3387	R	Southwest City..	29	U. S.	9	7
Drew, Francis W...	Macon.....	3638	R	Ettle.....	38	Eng.	13	....
Lyda, Gideon C....	.....	3619	R	Atlanta.....	25	Mo.	....	....
Webb, Wm. E.....	.....	3382	R	Macon City.....	33	Ky.	11	....
Nifang, Jefferson D.	Madison.....	3473	R	Ironton.....	25	Mo.	....	....
Kinsey, W. Bowles.	Maries.....	3431	R	Highgate.....	24	Mo.	....	....
Monnet, Wilson D.	Mercer.....	3607	R	Mill Grove.....	43	Ind.	19	....
Norwood, Wm. W.	Miller.....	3649	R	Brumley.....	27	Ky.	3	3
Cuppaidge, G. O...	Monroe.....	3590	R	Middle Grove....	28	Ire.	5	$\frac{1}{2}$
Pollard, Henry M..	.....	3419	R	Stoutsville.....	27	Mo.	....	....
Hollinbeck, T. G...	New Madrid....	3402	E	Portageville.....	....	....	....	....
Campbell, Thos. F.	Newton.....	3582	R	eneca.....	28	Can.	....	....
Lindley, John S...	.....	3558	R	Neosho.....	28	U. S.	6	....
Holloway, Chas. L.	Nodaway.....	3425	R	Quitman.....	31	Mo.	7	$\frac{1}{2}$
Taylor, Jas. S.....	.....	3445	R	Maryville.....	21	Ind.	....	....
Blackwell, Z. T....	Osage.....	3640	R	Dauphine.....	30	Mo.	....	....
Bard, Lafayette...	Pemiscot.....	3645	R	Hayward.....	46	Ky.	12	....
Steele, Stephen H.	.....	3561	R	Caruthersville...	55	Tenn.	34	30
Decker, Chas. M...	Pettis.....	3650	R	Smithton.....	27	Ohio.	2	1
Rains, Newton J...	.....	3556	R	".....	39	Ky.	13	....
Crozier, Wm. J....	Phelps.....	3407	R	St. James.....	27	Fr'ee.	7	....
Winn, John W.....	Platte.....	3539	R	Waldron.....	26	Mo.	....	....
Creson, Silas P...	Polk.....	3633	E	Fair Play.....	31	U. S.	4	....
Harman, Geo. W...	Pulaski.....	3496	R	Waynesville.....	36	Ky.	....	....
Taylor, Benj. J....	.....	3534	R	Tribune.....	38	"	....	....
Handkins, John W.	Putnam.....	3593	E	.....	....	....	....	....
Sturdivant, L'nee J.	.....	3678	R	Exline Ia.....	25	Iowa.	1	....
Dryborough, Ino W.	Randolph.....	3687	R	Higbee.....	30	Can.	3	....
Woodward, Wm. G.	Ray.....	3488	R	Hardin.....	26	U. S.	....	....
Heath, John.....	Ripley.....	3408	R	Varner.....	24	"	2	....
Brandt, Edward H.	St. Charles.....	3412	R	Cappeln.....	22	Mo.	....	....
Cummings, Geo. D.	.....	3519	R	Foristell.....	28	Can.	....	....
Hedemann, Chris. J.	.....	3413	R	Cappeln.....	22	Mo.	....	....
Bowling, Jas. A...	St. Clair.....	3505	R	Tiffin.....	30	U. S.	....	....
Moore, Thos. B....	.....	3531	R	Roscoe.....	32	Ky.	3	2
Keller, Francis...	St. Louis.....	3661	H	Woodland.....	51	Ger.	20	....
Ottoby, Law M....	.....	3543	H	Webster Groves.	23	Aus.	....	....
Plister, John D...	.....	3433	R	Creve Cœur.....	24	Ky.	....	....
Scott, Reuben T...	Saline.....	3484	R	Malta Bend.....	29	Mo.	1 $\frac{1}{2}$	....
Wilson, Francis M.	.....	3528	R	Norton.....	28	U. S.	....	....
Duncan, Erasmus A.	Shannon.....	3523	R	Eminence.....	53	Mo.	....	....
Bayliss, Wm. M...	Shelby.....	3375	R	Clarence.....	37	Va.	5	....
Mavis, Henry T...	Sullivan.....	3458	R	Humphreys.....	24	"	....	....
Stevens, David...	.....	3401	R	New Town.....	....	....	....	....
Whaley, David L...	.....	3450	R	Scottsville.....	36	Iowa	14	14
Warren, Aug. H...	Vernon.....	3591	R	Nevada.....	47	U. S.	10	....
Muzzy, Chas. R...	Webster.....	3480	H	Marshfield.....	48	N. Y.	15	....
King, Albert E...	Worth.....	3603	R	Redding, Ia.....	30	Kas.	7	7
Shidler, Schuyler..	.....	3536	R	Grant City.....	25	Ind.	....	....
White, James H...	.....	25	E	Denver.....	41	Ills.	2	2
Tuson, Frank B...	Wright.....	3550	R	Mansfield.....	28	Tenn.	2	2
Adams, Francis J..	City of St. Louis	3423	R	3937 Wash'n Av..	28	Cal.	5	..

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record.....
Date of certificate.	Basis of certificate, diploma or license.		
March 2....	Missouri Medical college, St. Louis.....	Mch. 2, '86.	
June 12....	Louisville Medical college, Ky.....	Feb. 16, '88.	
February 17	Medical department University of Tenn.....	Feb. 22, '87.	
January 30..	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 16, '75.	
January 30..	Missouri Medical college, St. Louis.....	Mch. 4, '80.	
October 9....	College of Physicians and Surgeons, Keokuk, Ia...	Mch. 2, '86.	
August 30....	Kentucky School of Medicine, Louisville.....	June 30, '88.	
January 10..	Medical college of Ohio, Cincinnati	Feb. 28, '79.	
March 30....	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88.	
Mch. 10....	Missouri Medical college, St. Louis	Mch. 6, '88.	
Aug. 14....	Indiana Medical college, Indianapolis.....	Feb. 25, '76.	
Oct. 19....	Missouri Medical college, St. Louis.....	Mch. 6, '88.	
July 18....	{ Royal College of Surgeons, Ireland	Dec. 21, '83.	
	{ The King's and Queen's Coll. of Physicians, Ire..	Mch. 14, '84.	
Mch. 9....	Missouri Medical college, St. Louis.....	Mch. 6, '88.	
Mch. 2....	American Medical college, Eclectic, St. Louis.....	June 5, '83.	
June 27....	University of Trinidad college, Toronto, Canada...	April 13, '86.	
June 5....	University of Louisville, Medical department, Ky...	Mch. 1, '88.	
Mch. 10....	Kansas City Medical college.....	Mch. 17, '85.	
Mch. 19....	Louisville Medical college, Ky.....	Feb. 16, '88.	
Oct. 9....	Kentucky School of Medicine, Louisville.....	June 3, '88.	
Oct. 16....	Nashville Medical college, Tenn.....	June 27, '78.	
June 5....	Medical department, University of Pa., Philadelphia.	April 1, '54.	
Oct. 19....	Starling Medical college, Columbus, O.....	Mch. 4, '88.	
May 30....	Louisville Medical college, Ky.....	Feb. 25, '75.	
Mch. 2....	Missouri Medical college, St. Louis.....	Mch. 2, '81.	
May 3....	Kansas City Medical college.....	Mch. 13, '88.	
Sept. 29....	Indiana Eclectic Medical college, Indianapolis.....	Feb. 12, '84.	
April 6....	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 28, '88.	
April 27....	" " " " " "	Feb. 28, '88.	
July 24....	Examination certificate, State Bd. Ex. of Iowa....	Jan. 3, '87.	
Dec. 18....	College of Physicians and Surgeons, Keokuk, Ia...	Feb. 28, '88.	
Dec. 28....	Iowa College of Physicians and Surg., Des Moines....	Mch. 4, '87.	
April 4....	Med. dep't, Vanderbilt University, Nashville, Tenn	Mch. 1, '88.	
March 9....	" " " " " "	Mch. 1, '86.	
March 9....	St. Louis Medical college.....	Mch. 8, '88.	
April 16....	Bellevue Hospital Medical college, New York City..	Mch. 12, '88.	
March 9....	St. Louis Medical college.....	Mch. 8, '88.	
April 10....	Kansas City Medical college.....	Mch. 13, '88.	
April 27....	" " " " " "	Mch. 13, '88.	
Nov. 5....	Homœop. Med. Dep't State University of Iowa....	Mch. 4, '84.	
May 3....	Homœop. Med. college of Missouri, St. Louis.....	Mch. 15, '88.	
March 10....	Missouri Medical college, St. Louis.....	Mch. 6, '88.	
April 2....	Kentucky School of Medicine, Louisville.....	June 28, '86.	
April 23....	St. Louis Medical college.....	Mch. 3, '88.	
April 23....	University of Louisville, Ky., Medical Dep't.....	Mch. 1, '88.	
Jan. 4....	Kansas City Medical college.....	Mch. 7, '82.	
March 22....	Missouri Medical college, St. Louis.....	Mch. 6, '88.	
March 2....	College of Physicians and Surgeons, Keokuk, Ia...	Mch. 2, '88.	
March 19....	Missouri Medical college, St. Louis.....	Mch. 6, '88.	
July 18....	University City of New York, Medical dep't.....	Mch. 12, '86.	
April 2....	Homœopathic Medical College of Missouri, St. Louis	Mch. 17, '87.	
August 4....	College of Physicians and Surgeons, Keokuk, Ia...	Mch. 1, '81.	
April 27....	" " " " " " Chicago, Ills.....	Feb. 28, '88.	
July 19....	Examination by State Board of Health of Missouri..	July 19, '88.	
May 24....	Missouri Medical college, St. Louis.....	Mch. 2, '86.	
March 9....	University of Georgetown, Med. dep't, D. C.....	Mch. 31, '81.	

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No...	School.....	Residence and postoffice.	Age.....	Nativity.....	Years practice.	
							Total yrs.	Yrs in Mo
Allen, Benjamin G.	City of St. Louis	3588	R	City hospital.	21	Ky.	....	....
Bahrenburg, Wm..		3602	H	1922 St. Louis Av	28	Ohio.	4	....
Benson, Benj. G...		3409	R	1826 Wash St....	21	Mo.	....	....
Bayer, Ad Lippe...		3447	H	Jeff. Av. & Ad'ns	21	N. Y.	....	....
Bradley, Alfred E..		3398	R	5889 Clemens Av.	23	"	1	....
Butler, Louis P....		3525	R	1815 S. Broadway	22	Mo.	....	....
Carlisle, Irwin C...		3383	R	1115 Vandev'r Av	35	Ohio.	13	....
Downs, Chas. W O		3540	E	2017 Rutger St...	31	Mass.	....	....
Faber, Herman W..		3448	R	1725 South 7th ...	21	Mo.	....	....
Fetterhoff, Hiram R		3587	H	2300 Olive St....	51	Pa.	19	....
Galloway, Wm. L...		3581	H	2616 Goode Av....	28	Mo.	1	....
Gissy, Chas. E. ...		3379	R	1829 South 9th...	34	Als'ce	13	3
Glick, Moses S....		3665	E	920 North 6th...	47	Prus.	2½	....
Gordon, Thomas A		3646	R	1820 Cora place ..	37	Ky.	11	10
Graves, William W		3422	R	903 Olive St....	22	"	1	....
Gray, R. Fletcher..		3585	H	1454 Wright St ..	47	Pa.	12	....
Grundmann, F. W.		3446	H	2530 Benton St...	29	Ger.	....	....
Gntherz, Lizzie G.		3655	H	3600 Olive st....	33	Ala.	2	....
Hersman, Chas. F.		3438	R	2620 " " " " " "	23	Mo.	....	....
Hoogen, Franz F. A		3622	R	318 Lafayette Av	33	Ger.	....	....
Jaeger, Charles....		3435	R	Mo Med. college	23	Mo.	....	....
Jenkins, Julian W.		3689	R	1558 California Av	35	Va.	....	....
Jennings, Marsh. D		3432	R	520 Walnut St...	27	Ills.	....	....
Johnson, Wash. S..		3674	R	2721 Lucas Av ...	35	U. S.	6	....
Jones, John L.		3553	R	2644 Wash'n Av..	38	Ky.	19	....
Jones, Leroy.....		3439	R	2620 Olive St....	25	Ills.	....	....
Jordan, Alex. G....		3615	R	406½ North 7th...	23	Mo.	....	....
Judd, Henry L....		3671	R	2727 Lucas Av ...	45	Ills.	23	2
Kleykamp August..		3421	R	2327½ N. Market..	29	Ger.	3	....
Knox, Lucy R. P..		3460	H	1701 Lucas Av ...	39	N. Y.	....	....
Kolline, Otto.....		3584	R	1715 Geyer Av....	28	Mo.	....	....
Krebs, George A...		3426	R	107 Victor St....	21	"	....	....
Krieger, Joseph A		3452	R	2918 Dickson.....	22	Mo.	2	2
Lager, Carlson B...		3378	H	2345 Eugenia	36	Swe.	2½	....
Lawrence, Jos. M..		3492	H	2622 Wash	51	Ohio.	6	....
Lee, Lewis		3570	E	53 " " " " " "	35	Eng.	10	....
Levy, Felix J		3459	R	3510 Pine	22	Mo.	....	....
Lillie, Chas. W....		3444	R	1616 Olive.....	40	Ohio.	12	....
Loring, Casimir G.		26	R	4107 Bell.	22	Mo.	1	1
McDonald, Alex....		3389	R	1931 Olive.....	23	"	3	3
McGinnis, H. F....		3441	R	1301 Lynch	21	"	....	....
Macleod, John.....		3636	R	2618 Locust.....	42	Scot.	10	....
Mardorf, Wm. C....		3414	R	804 Carr.....	21	Mo.	....	....
Meyer, Henry.....		3648	H	2018 Salisbury....	22	"	3	3
Miller, Gregory S..		3429	R	Hotel Belvedere..	21	"	....	....
Moore, Robt. L. ...		3515	R	1405 Olive.....	22	"	....	....
Nolte, John H.		3597	E	928 North High..	25	"	....	....
Papin, L. Loisel...		3416	R	3615 Laclade Av ..	21	"	....	....
Randolph, Laura L.		3577	E	105 North B'dway	52	Ind.	....	....
Redman, Joseph R.		3377	E	310 North 11th. ..	38	Ills.	5	....
Reipschlaeger, E...		3630	R	4th and Market ...	26	Mo.	....	....
Rowland, Wm. P..		3411	R	962 Chouteau Av.	26	Ohio	....	....
Sargent, Mary W..		3461	H	3007 Easton Av..	22	Wis.	....	....
Saunermann, Hans..		3420	R	2201 Chouteau Av	26	Bav.	....	....
Scheele, Mathias H.		3466	R	3702 Ohio Av.....	29	Mo.	....	....
Schultz, H. W. C..		3508	R	1023 Lami.....	21	Ills.	....	....
Sellner, Arnold....		3474	R	7618 S. B'dway ..	26	"	....	....

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record . . .
Date of certificate.	Basis of certificate, diploma or license		
July 18....	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	
August 4...	Hahnemann Medical college, Chicago, Ills... ..	Feb. 21, '84	
March 9....	St. Louis College of Physicians and Surgeons.....	Mch. 3, '88	
March 19...	Homeopathic Medical College of Missouri, St. Louis	Mch. 15, '88	
Feb. 17....	Jefferson Medical college, Philadelphia, Pa.....	April 5, '87	
April 23...	St. Louis Medical college.....	Mch. 8, '88	
Jan. 10....	Med. dep't University of Wooster, Cleveland, Ohio.	Feb. 25, '75	
May 3....	Bennett College of Eclectic Med. and Surg., Chicago	Mch. 20, '88	
March 19...	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	
July 6....	Hahnemann Medical college, Philadelphia, Pa.....	Mch. 3, '68	
June 27...	Boston Univer. School of Medicine, Homœopathic..	June 6, '88	
Jan. 10....	St. Louis Medical college.....	Mch. 11, '75	
Nov. 12...	Bennett College of Eclectic Med and Surg., Chicago	Mch. 23, '86	
Oct. 16...	Kentucky School of Medicine, Louisville.....	June 29, '77	
March 9...	St. Louis College of Physicians and Surgeons.....	Mch. 3, '88	
July 6....	Hering Medical college, Homœopathic, St. Louis...	Mch. 16, '82	
March 19...	Homœopathic Medical College of Missouri, St. Louis	Mch. 15, '88	
Oct. 30....	N. Y. Med. College and Hospital for Women, Homœ- opathic, N. Y. city.....	April 24, '88	
March 13...	Missouri Medical college, St. Louis.....	Mch. 6, '88	
August 30..	" " " "	Mch. 2, '86	
March 13...	" " " "	Mch. 6, '88	
Dec. 28....	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	
March 10...	St. Louis College of Physicians and Surgeons.....	Mch. 3, '86	
Dec. 10....	Missouri Medical college, St. Louis.....	Mch. 2, '82	
May 24....	Louisville Medical college, Kentucky	Feb. 29, '72	
March 13...	Missouri Medical college, St. Louis.....	Mch. 6, '88	
August 21..	St. Louis Medical college.....	Mch. 8, '88	
Nov. 27...	" " " "	Mch. 1, '65	
March 9....	Missouri Medical college, St. Louis.....	Mch. 6, '88	
March 23...	Homœopathic Medical College of Missouri.....	Mch. 15, '88	
June 27....	St. Louis Medical college.....	Mch. 3, '87	
March 10...	St. Louis College of Physicians and Surgeons.....	Mch. 3, '88	
March 19...	Missouri Medical college, St. Louis.....	Mch. 6, '88	
Jan. 10....	Hahnemann Medical college, Chicago, Ills.....	Mch. 27, '85	
April 4....	Homeopathic Medical college of Missouri, St. Louis.	Mch. 15, '88	
June 18...	American Medical college, Eclectic, St. Louis.....	June 1, '88	
March 23...	Missouri Medical college, St. Louis.....	Mch. 6, '88	
March 16...	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	
July 19...	Examination by State Board of Health of Missouri.	Mch. 15, '88	
Jan. 30....	Missouri Medical college, St. Louis.....	Mch. 2, '87	
March 16...	Missouri Medical college, St. Louis.....	Mch. 6, '88	
Sept. 29...	Univ. of Bishop's college, fac. of med. Montreal, Can.	April 5, '77	
March 9....	St. Louis Medical college.....	Mch. 8, '88	
Oct. 19...	Homœopathic Medical college of Missouri, St. Louis	Mch. 15, '88	
March 10...	St. Louis Medical college.....	Mch. 8, '88	
April 13...	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	
July 27...	American Medical college, Eclectic, St. Louis.....	June 1, '88	
March 9...	St. Louis Medical college.....	Mch. 8, '88	
June 21...	American Medical college, Eclectic, St. Louis.....	June 1, '88	
Jan. 4....	American Medical college, Eclectic, St. Louis.....	June 5, '83	
Sept. 19...	Medical faculty University of Strasburg, Germany...	July 30, '87	
March 9....	St. Louis Medical college.....	Mch. 8, '88	
March 23...	Homœopathic Medical college of Missouri, St. Louis	Mch. 15, '88	
March 9....	Missouri Medical college, St. Louis.....	Mch. 6, '88	
March 27...	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	
April 10...	St. Louis Medical college.....	Mch. 8, '88	
March 30...	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	

LIST OF PHYSICIANS TO WHOM

Name.	County.	Register No...	School.....	Residence and postoffice.	Age.....	Nativity.....	Years practice	
							Total yrs.	Yrs in Mo
Shomber, Henry...	City of St. Louis.	3625	E	1121 Salisbury ...	39	Pa.	12	1
Sluder, Greenfield.		3415	R	2326 Olive.....	22	Mo.	.....	.....
Smiley, Frank R...		3486	R	City hospital	28	W. Va.	.....	.....
Smith, Augusta...		3659	E	1354 Garrison Av.	56	N. Y.	22	22
Smoot, John B....		3583	R	Alexian Bro. Hos.	52	Tex.	.....	.....
Staudinger, H. L..		3526	R	B'dway & Sal'by.	47	Ger.	21	21
Stevens, Lewis T..		3386	R	3217 Wash'n Av..	26	Md.	2	.....
Stiepel, Julius R..		3632	R	11th & N. Market	36	Aus.	.....	.....
Taylor, Thomas L.		3618	R	2348 Pine	33	V. A.	11	.....
Thompson, Geo. H.		3453	R	2104 Lafayette Av	22	Tenn.	.....	.....
Thomson, Robt. L.		3396	R	500 N Jeff'n Av..	32	Ky.	7	.....
Turnbull, Louis A.		3490	R	917 N. Ewing Av.	24	Miss	.....	.....
Wait, Walker J....		3392	R	3456 Chestnut....	29	Mo.	8	.....
Walter, Frederick.		3483	R	Mo. Med. college	26	Ills.	.....	.....
Waterhouse, E. R.		3647	E	1316 Miss'pi Av..	38	Ohio	6	.....
Watson, George N.		3451	R	2651 Morgan	35	"	.....	.....
Wells, Edwin H....		3430	R	2624 Olive	23	N. Y.	.....	.....
Wells, Horatio....		3482	R	City hospital	27	Ark.	.....	.....
White, Joseph T...		3434	R	Florida, Mo.	22	Mo.	.....	.....
Wichmann, H. L..		3417	R	1419 South 7th...	22	Ills.	.....	.....
Wilkinson, Edgar B.		3514	R	205 South 16th...	22	"	.....	.....
Wilson, Chas. L...		3440	R	2621 Gamble	31	Ohio	.....	.....
Woodson, Edw. C.		3672	R	1201 Taylor Av...	32	Ky.	11	2
Worley, Richard D.		3551	R	1511 North 14th..	42	Ills.	19	.....
Zeller, Francis F..		3591	R	7119 S. B'dway ..	25	Mo.	.....	.....

Duplicate certificates upon proofs of loss of originals were issued to J. F. Bagfayette county; Helen P. Philips, city of St. Louis, and William L. Reed, city of

LIST OF MIDWIVES to whom certificates were issued

Name.	County.	Register No...	School.....	Residence and postoffice.	Age.....	Nativity.....	Years practice	
							Total yrs.	Yrs in Mo
Henberger, Mary...	Audrain	497	H	Mexico.....	40	Swiss	7	.....
Schwabe, Emilie...	Cooper.....	482	.....	Gooch's Mill.....	38	Prus.	15	.....
Freund, Charlotte.	Gasconade.....	508	.....	Hermann.....	36	Mo.	.....	.....
Schneider, A. M...		479	.....	Herrmann.....	29	"	.....	.....
Amann, Maria M...	City of St. Louis	481	.....	4310 Shenandoah.	28	Ills.	1	.....
Borbeck, Lena....		483	.....	908 S. 4th.....	53	Ger.	9	6
Borgading, Louise.		514	.....	4310 Florissant Av	33	Mo.	8	8
Braun, Therese....		496	.....	3413 Lemp Av....	35	Ger.	8	.....
Buchroeder, Louise		511	.....	2603 N. 14th....	32	"	.....	.....
Cypress, Anna....		503	.....	1869 S. 12th....	34	"	.....	.....
Cypress, John....		502	.....	1269 S. 12th....	33	"	3	.....
Daniels, Margret...		480	.....	1002 N. 7th.....	49	Eng.	10	5
Delfosse, Adriana.		512	.....	322 E. Courtois..	23	Hol.	.....	.....

CERTIFICATES WERE ISSUED IN 1888—Continued.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record ..
Date of certificate.	Basis of certificate, diploma or license.		
Sept. 5	American Medical college, Eclectic, St. Louis.....	June 5, '83.	.....
March 9	St. Louis Medical college.....	Mch. 8, '88.	.....
April 4	Beaumont Hospital Medical college, St. Louis	Mch. 15, '88.	.....
Nov. 5	Bennett College of Ecl. Med and Sur., Chicago, Ills.	Mch. 20, '83	.....
June 27	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88.	.....
April 23	Humboldt Medical college, St. Louis	April 11, '67	.....
Jan. 23 ...	Harvard University Medical school, Boston, Mass..	June 29, '87	.....
Sept. 29	St. Louis College of Physicians and Surgeons.....	Mch. 3, '88.	.....
Aug. 24	Beaumont Hospital Medical college, St. Louis.....	Mch. 15, '88	.....
March 19 ...	Missouri Medical college, St. Louis.....	Mch. 6, '88.	.....
Feb. 17	Kentucky School of Medicine, Louisville.....	June 28, '80.	.....
April 4	Missouri Medical college, St. Louis.....	Mch. 6, '88.	.....
Feb. 17	St. Louis Medical college	Mch. 5, '80.	.....
April 2	Missouri Medical college, St. Louis	Mch. 6, '88.	.....
Oct. 16	Eclectic Medical institute, Cincinnati, Ohio.....	June 7, '84.	.....
March 19 ...	Missouri Medical college, St. Louis.....	Mch. 6, '88.	.....
March 10 ...	Missouri Medical college, St. Louis.....	Mch. 6, '88.	.....
April 2	St. Louis Medical college	Mch. 8, '88.	.....
March 13 ...	Missouri Medical college, St. Louis	Mch. 6, '88.	.....
March 9	St. Louis Medical college.....	Mch. 8, '88.	.....
April 3	Beaumont Hospital Medical college, St. Louis.....	Mch. 1, '87.	.....
Nov. 27	Missouri Medical college, St. Louis	Mch. 6, '88.	.....
March 1	Beaumont Hospital, Medical college, St. Louis	Mch. 1, '87.	.....
June 29	Kentucky School of Medicine, Louisville.....	June 29, '76.	.....
March 15 ...	Beaumont Hospital Medical college, St. Louis	Mch. 15, '88	.....

nell of Barton county; Caleb E Mathis, Jackson county; Joseph Pinquard, La-St. Louis.

by the State Board of Health during the year 1888.

Certificate of State Board of Health.		Date of diploma.	Certificate filed for record
Date of certificate.	Basis of certificate, diploma or license.		
Sept 29	Missouri School of Midwifery, St. Louis.....	Dec. 3, '80	.....
May 3	Institute of Midwifery, Posen, Prussia.....	May 29, '73	.....
Dec. 18	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	.....
April 16	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	.....
April 27	Newland's College of Midwifery, St. Louis.....	Dec. 10, '85	.....
May 9	Missouri School of Midwifery, St. Louis.....	June 11, '76	.....
Dec. 22	St. Louis School of Midwives.....	Dec. 16, '80	.....
Sept. 15 ...	School for Midwives, Paterborn, Germany.....	July 27, '78	.....
Dec. 22	St. Louis School of Midwives.....	Dec. 19, '88	.....
Dec. 6	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	.....
Dec. 6	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	.....
April 27	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	.....
Dec. 22	St. Louis School of Midwives.....	Dec. 19, '88	.....

LIST OF MIDWIVES to whom certificates were issued

Name.	County.	Register No. . .	School.	Residence and postoffice.	Age.	Nativity	Years practice	
							Total yrs.	Yrs in Mo
Dingler, Frida.	City of St. Louis.	474	....	610 Dorcas.	33	Ger..	.....
Duffy, Louisa.		506	....	741 S. 3d.	31	Ills..	.....
Eagar, Eliza.		495	....	1711 Franklin Av.	30	Ire'l'd	.....
Engels, Anna.		493	....	1511 S. 10th. ...	27	Ger..	.....
Friedman, Catrina.		513	....	1010 N. 7th.	33	Rus..	.....
Grundrick, Helena.		486	....	1525 Vail place ..	40	Al'ce.	.....
Hagemeier, Clara..		475	....	2019 Branch St...	27	Mo..	.....
Handing, Rosalia..		509	....	1520 N. Market...	40	"	.....
Heywood, Maude..		499	....	1511 Chestnut....	41	Mass.	.....
Holmquist, Anna S.		507	....	1509 Walnut.	33	Swe..	.....
Justus, Pauline....		477	....	433 Clarence Av..	30	Ger..	.....
Kassing, Henrietta.		490	....	1917 Anglerodt...	38	"	.....
Koenemann, C.		494	....	3910 N. 9th.	41	"	3	....
Korn, Margaretha.		488	....	1025 O. Manch. rd	37	Switz	.....
Landott, May.		485	....	3236 Texas Av...	22	Ills..	.....
Lane, Emma.		510	....	1209 Howard	27	"	.....
Lane, Hannah.		484	....	1515 Papin.	30	"	.....
Merschmann, C.		487	....	2226 Gravois r'd.	31	Ger..	.....
Mulcahy, Annie.		504	....	1513 Singleton St.	45	N. Y.	.....
Niesen, Dora.		505	....	2123 Singleton St.	32	Ger..	.....
Oberfell, Mary.		491	....	3322 S. 2d.	40	Ills..	.....
Pedrini, Anna.		500	....	1311 Clark Av....	25	Switz	.....
Peters, Mary E.		501	....	3318 Blair Av....	42	Pras..	10 10	
Schindele, Eva.		478	....	1223 Sidney.	27	N. G.	2 2	
Schmidtmeier, T. ...		492	....	Edwardsville, Ills	38	Ger..	.....
Sivener, Mary A. ...		476	....	3332 LaSalle.	43	Mo..	20 20	
VanDornis, Annie.		498	....	823 N. 4th.	34	Ger..	.....
Wippner, L. M.		489	....	1116 Montgomery	31	Ills..	.....

NOTICE—The foregoing lists of names of physicians and midwives embrace 93 organizations. The dates when the several certificates were filed for record in the can only be had from those officials. Correspondence to this end is in progress, and being ordered printed by the State.

by the State Board of Health during the year 1888—Continued.

Certificate of State Board of Health.		Date of diploma	Certificate filed for record...
Date of certificate.	Basis of certificate, diploma or license.		
Jan. 4	Missouri School of Midwives, St. Louis.....	Dec. 17, '87	
Dec. 6.....	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	
Sept. 11....	Newland' College of Midwifery, St. Louis.....	June 2, '88	
July 24.....	Newland's College of Midwifery, St. Louis.....	Dec. 3, '87	
Dec. 22....	St. Louis School of Midwives.....	Dec. 19, '88	
June 8.....	Newland's College of Midwifery, St. Louis....	June 2, '88	
Jan. 10.....	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	
Dec. 22....	St. Louis School of Midwives.....	Dec. 19, '88	
Nov. 27....	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	
Dec. 6.....	Missouri School of Midwifery, St. Louis.....	Dec. 5, '88	
Jan. 23....	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	
June 12....	Missouri School of Midwifery, St. Louis.....	June 7, '88	
July 27....	Missouri School of Midwifery, St. Louis.....	July 25, '88	
June 8.....	St. Louis School of Midwives.....	June 6, '88	
June 8.....	Newland's College of Midwifery, St. Louis.....	June 2, '88	
Dec. 22....	St. Louis School of Midwives.....	Dec. 19, '88	
June 8.....	Newland's College of Midwifery, St. Louis.....	June 2, '88	
June 8	St. Louis School of Midwives.....	June 6, '88	
Dec. 6.....	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	
Dec. 6.....	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	
June 12....	Missouri School of Midwifery, St. Louis.....	June 7, '88	
Dec. 6.....	Newland's College of Midwifery, St. Louis.....	Dec. 1, '88	
Dec. 6.....	St. Louis School of Midwives.....	June 14, '78	
March 23...	St. Louis School of Midwives.....	June 9, '82	
June 12....	Newland's College of Midwifery, St. Louis.....	June 2, '88	
Jan. 10....	Missouri School of Midwifery, St. Louis.....	Dec. 17, '87	
Oct. 9	Missouri School of Midwifery, St. Louis.....	July 25, '88	
June 12....	Missouri School of Midwifery, St. Louis.....	June 7, '88	

counties and the city of St. Louis, and represent 107 medical institutions and office of the county clerk in the county of holder's residence, as provided by law, the appropriate column will be filled as nearly as possible in the event of the list

Certificates Issued by State Board.

Dates when certificates issued by the State Board of Health to the persons named below were filed for record in the office of the county clerks, in accordance with section 5, Medical Practice act, approved April 2, 1883.

Name.	County.	Date.
Joshua Beach.....	Adair.....	1887—July 21
Geo. H. Branham.....	.....	.....
Andrew P. Davis.....	.....	September 9.....
Henry W. Heryford.....	.....	December 17.....
Charles E. Henshaw.....	.....	1888—November 19.....
Urban G. Iles.....	.....	.....
Julia A. King.....	.....	December 24.....
Milburn McCarty.....	.....	September 14.....
Clarence O. Jefferies.....	Andrew.....	1888—April 12.....
Elmer C. Jefferies.....	.....	April 13.....
James A. Denney.....	Atchison.....	1887—August 11.....
Alfred Elder.....	.....	1888—May 1.....
L. J. Kynett.....	.....	September 5.....
Eugene P. Taylor.....	.....	June 29.....
G. F. Toalson.....	Audrain.....	1888—June 23.....
Theodore Winans.....	.....	June 23.....
Maria Zimmerman (now Heuberger, midwife).....	.....	October 8.....
Robert Algeo.....	Barton.....	May 17.....
O. R. Alien.....	.....	1887—April 29.....
Smith L. Bates.....	Bates.....	1887—.....
John R. Boyd.....	.....	April 30.....
J. H. Robinson.....	.....	December 28.....
Thomas J. West.....	.....	December 3.....
Charles W. Pyle.....	.....	1888—April—.....
S. Oliver Davis.....	Benton.....	1888—April 6.....
John W. Mowell.....	.....	April 4.....
H. S. Chandler.....	Bollinger.....	1887—September 5.....
Geo. H. Sample.....	.....	1888—April 24.....
J. R. Talley.....	.....	April 25.....
D. W. Bosserman.....	Boone.....	1887—March 9.....
P. Galleher.....	.....	February 8.....
J. O. Grubbs.....	.....	March 14.....
R. L. Hopper.....	.....	March 12.....
G. A. Bradford.....	.....	1888—.....
W. J. Fretwell.....	.....	.....
M. Marshall.....	Buchanan.....	1887—December 6.....
Alonzo I. West.....	.....	.....
S. E. Cloud.....	.....	1888—May 3.....
B. E. French.....	.....	October 25.....
F. A. Groat.....	.....	December 6.....
John M. Kaiser.....	.....	August 21.....
Anna M. Longshore.....	.....	January 14.....
D. Morton.....	.....	1889—October 30.....
J. B. Riley.....	.....	January 14.....
G. H. Smith.....	.....	February 25.....
W. H. Aplin.....	Caldwell.....	1887—January 17.....
R. K. Dodge.....	.....	March 14.....
McD. M. Powell.....	.....	February 11.....
J. A. Waterman.....	.....	.....

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
R. Titterington	Camden	1887—
R. W. Malone	Cape Girardeau	1887—March 23
J. W. Russell .....	.....	March 19
H. Thrift .....	.....	1888—
C. A. Delabar	Cass	1887—November 16.
L. W. Tandy .....	.....	March 1
C. E. Amerman .....	.....	1888—April 7.
J. B. Brierly .....	.....	Septemer 15
D. G. Himrod .....	.....	.....
J. McN. Taylor .....	.....	May 26.
C. H. Craig	Callaway	1887—
J. W. Walters .....	.....	1888—June 14
C. S. Austin	Carroll	1887—May 23.
C. D. Kunkel .....	.....	July 2.
S. M. Neely .....	.....	September 21.
G. W. Prewitt .....	.....	.....
C. W. Newland .....	.....	1888—March 28.
E. J. Russell .....	.....	August 27.
W. D. Jones	Carter	1888—December 13.
W. J. Billeter	Chariton	1887—April 4.
W. N. Nanney .....	.....	January 22.
C. P. Bryan .....	.....	1888—June 15.
R. E. Bryan .....	.....	February 28.
J. T. Dewey .....	.....	March 26
S. S. Glascock	Clay	1887—May 7.
S. I. Harrison .....	.....	May 7.
T. R. Beattie .....	.....	1888—May 19.
L. W. Beck .....	.....	August 17.
H. O. Beson .....	.....	April 10.
H. M. Dagg .....	.....	April 13.
Charles Eversole .....	.....	August 24.
H. Rowell .....	.....	October 1
F. S. Love	Cole	1887—August 31.
J. P. Porth .....	.....	March 12.
J. S. Enloe .....	.....	1888—June 26
G. A. Huupert .....	.....	June 23
J. Derr	Clark	1887—July 14.
H. N. Henry .....	.....	July 30.
J. R. Bridges .....	.....	1888—August 27.
S. E. Doss .....	.....	November 19
B. F. Gabbert .....	.....	March 30.
H. W. Harris .....	.....	March 5.
W. J. Kirkpatrick .....	.....	March 30.
A. M. Collins	Clinton	1887—March 14.
John Franke .....	.....	.....
W. H. Hill .....	.....	July—
J. D. F. Dove .....	.....	1888—October 25.
J. H. Snyder .....	.....	October 26.
G. W. Stiffler	Cooper	1887—April 13.
F. W. Compton .....	.....	1888—October 13.
A. H. Culp .....	.....	April 19.
G. A. Russell .....	.....	May 23.
H. W. Schaeffer .....	.....	June 6.
P. E. Williams .....	.....	June 21.
E. Schwabe (midwife) .....	.....	.....
Z. T. Martin	Dade	1887—August 29.
J. T. Wallace .....	.....	1888—April 6.
C. McCarthy	Daviess	1888—August 13.
N. M. Strasser .....	.....	April 16.
J. P. Cawthon	Dunklin	1887—October 24.
S. C. Lawrence .....	.....	January 3.
R. C. Marcum .....	.....	May 14.
M. Rosenthal .....	.....	May 3.

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
J. Chaney	Dunklin	1888—March 19
A. P. Chatham		May 21
A. S. Harrison		April 6
P. F. Hudspeth		May 25
F. Kinsolving		May 16
W. F. Landreth		April 5
J. A. Shivers		June 11
W. P. Fitzgerald	Franklin	1887—March 16
J. J. Fowler		May 26
O. L. Muench		May 2
S. F. Curry	Gentry	1887—July 29
L. E. Miller		October 10
J. S. Lindley		1888—January 19
F. G. Smith		March 2
W. E. Spence		January 3
G. O'B. DeBar	Greene	1887—November 22
R. Marsh		July 23
W. D. Sidman		September 14
A. E. Webster		May 9
A. C. Williamson		1888—July 8
G. B. Williamson		June 1
E. L. Beal		September 5
F. E. Davis		August 7
A. P. Evans		June 7
D. B. Farnsworth	Grundy	1887—May 24
J. L. Jackson		1888—October 9
J. C. Davis	Harrison	1887—January 29
C. S. Dilley	Henry	1887—April 14
T. H. Humphreys		December 9
T. J. Holcomb		1888—January 26
J. T. Johnson		March 16
C. C. Banta		1887—March 21
W. H. Vance	Howard	1888—March 30
L. A. Wisley		1887—September 5
O. D. Young	Holt	December 27
T. J. Payne		1888—March 22
W. J. Findley		July 4
J. C. Tracy		October 11
S. S. Bever		April 3
L. R. Hoffman		April 16
R. E. Davis		1887—
J. H. McGahey	Howell	1887—July 15
J. W. Petty	Jackson	May 16
G. W. Schwartz		July 20
W. H. H. Davis		January 27
V. Anderson		September 1
W. D. Barber		April 12
E. Beach		April 25
G. E. Bellows		October 10
J. C. Bennett		April 2
E. W. Blough		July 2
B. F. Brainard		October 28
N. A. Brown (now Beadle)		
J. Bruehl		
A. M. Childs		
E. S. Colt		
C. E. Clark		
T. S. Dabney		
LeRoy Dibble		
A. Donaldson		
T. Doyle		
J. M. Evans		
H. L. Green		

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
R. L. Greene.....	Jackson.....	1887—October 20.....
J. W. Gaines.....	November 23.....
A. L. Haas.....
W. H. Hammersley.....	October 20.....
M. E. Harris.....
Geo. E. Harrison.....
W. F. Harvey.....	July 6.....
G. Heywood.....	November 29.....
B. Hood.....	December 7.....
F. J. Inen.....	September 15.....
W. C. Inen.....	December 5.....
F. R. Jones.....
E. W. Judson.....	May 9.....
A. S. McDaniel.....	March 1.....
N. McClure.....	July 7.....
J. M. Magoon.....	September 30.....
J. N. Mangan.....	July 7.....
V. W. Mather.....	December 10.....
C. E. Mathis.....	January 11.....
C. S. Merriman.....
G. M. D. Merwin.....	April 27.....
P. E. Minckler.....
E. P. Newcomb.....
P. C. Palmer.....
J. E. Perkins.....	November 29.....
J. B. Pettijohn.....	June 21.....
McD. Purcell.....	August 29.....
O. K. Reynolds.....	November 28.....
J. J. Taylor.....
C. C. Webb.....
S. Furnas-Wells.....
W. O. Wilkes.....	October 20.....
F. H. York.....	March 29.....
E. Abeles.....	1888—March 14.....
N. Jewett Aikin.....	July 23.....
S. Ayres.....	October 27.....
J. J. Beekman.....	January 15.....
C. C. Bingham.....	May 5.....
J. D. Boggs.....	October 22.....
E. Burchord.....	March 10.....
A. B. Cline.....	April 17.....
P. A. Cline.....	April 17.....
G. Corrie.....
H. C. Crowell.....	November 13.....
J. M. Elliott.....	March 30.....
F. C. Ewing.....
F. M. Ewing.....
C. M. Fulton.....	August 19.....
H. I. Graves.....	December 21.....
J. H. Gray.....	August 27.....
J. P. Hayes.....	May 12.....
J. E. Herbst.....	May 5.....
A. Hooper.....
G. S. Hopkins.....	April 14.....
J. A. Horrigan.....	October 25.....
F. H. Hovey.....	September 19.....
E. Le R. Hutton.....
E. J. Kimmell.....	March 20.....
T. J. Kisner.....	July 20.....
W. F. Kuhn.....	October 26.....
C. LeBeau.....	August 14.....
J. M. Logan.....	November 28.....
W. T. McCoy.....	February 7.....

CERTIFICATES ISSUED—Continued.

Name.	County	Date.
J. E. Marshall	Jackson	1888—December 21.....
C. Lona Marsters.....	May 2
C. B. Martin
J. McD. Massie	January 18
J. Mears	December 20.....
R. D. Melvin.....
L. B. Morrow.....
E. J. Nickerson.....	August 22.....
C. C. Olmsted	May 29
H. E. Pearse.....	November 9.....
Wm. C. Phillips.....	October 12.....
J. Puntun	April 27.....
C. F. Smolt
M. S. Stahl	January 3.....
R. J. Stall	September 4.....
J. F. Stevens.....	October 29.....
B. V. Sweringen
H. K. Tefft	May 31
J. B. Tyler	Sanuary 27
E. J. Van Wagner.....	September 17.....
E. Von Quast.....	October 11.....
E. D. Wahl	December 20.....
R. Walsh	January 18
H. McG. Wilson.....
A. Wilder	November 16.....
H. L. G. Wilder.....
I. Wolf	August 23.....
B. E. Gooding.....	Jasper	1887—August 29
J. P. Green.....	February 10
C. B. Guinn.....	June 21.....
W. H. K. King.....	September 30
B. F. Lezeuby.....	August 6.....
P. McCambridge.....
O. P. Myers.....	June 7.....
W. L. Seaman
J. B. Buchanan.....
C. E. Singleton.....	September 23
A. R. Snyder.....	September 13
W. J. Willim.....	September 13
A. T. Baker	1888—June 16.....
Jas. Breen.....	January 9.....
W. S. Chenoweth.....	December 31.....
B. F. Jones.....	January 1.....
O. Trenkler.....	August 14
J. C. Utter.....	September 10.....
C. C. Walton	November 14.....
J. H. Woodard	May 10.....
J. S. Deaderick.....	Jefferson.....	1887—October 13.....
C. C. Gorham.....	March 24.....
H. E. Hasse.....	February 7.....
G. F. Hamel.....	1888—.....
W. N. Kenney.....	May 21.....
L. A. Burr.....	Johnson	1887—.....
L. J. Schofield	July 1.....
F. M. Farrar.....	Iron	1888—March 23.....
J. R. Smith.....	April 24.....
H. Walton McKim.....	Knox	1887—.....
W. A. Bracelein.....	Lafayette.....	1888—March 22.....
J. C. Christ.....	January 30.....
Wm R. Gosewisch.....	April 17.....
F. N. Hamisfar.....	March 5.....
J. H. Smith.....	Lawrence.....	1887—April 12.....
A. J. Stark.....	May 16.....

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
B. A. Martin.....	Lawrence.....	1888—August 2.....
F. S. Stevenson.....	.....	July 3.....
J. M. Titterington.....	.....	April 9.....
S. E. Haycraft.....	Lewis.....	1887.....
T. F. Brown.....	.....	1888—February 28.....
J. B. Corley.....	Lincoln.....	.....
O. H. Ridings.....	Linn.....	July 17.....
J. D. Thompson.....	.....	April 2.....
W. A. Henderson.....	Livingston.....	April 24.....
E. J. Norris.....	.....	May 26.....
C. W. Patton.....	.....	April 17.....
S. R. Bergen.....	McDonald.....	1887—September 27.....
T. A. Coffelt.....	.....	1888—March 14.....
W. L. Goff.....	.....	June 20.....
B. C. Lay.....	.....	February 25.....
J. C. Petit.....	.....	February 3.....
T. R. Quarles.....	.....	February 6.....
J. M. Alexander.....	Macon.....	1887—May 3.....
T. M. McCully.....	.....	May 20.....
J. B. Shepherd.....	.....	.....
Geo. W. Smith.....	.....	1888.....
F. W. Drew.....	.....	.....
G. C. Lyda.....	.....	.....
W. E. Webb.....	.....	May 29.....
J. D. Nifong.....	Madison.....	.....
R. W. Amos.....	Maries.....	1887—April 20.....
H. J. Grep.....	.....	.....
W. B. Kinney.....	.....	1888—May 23.....
T. A. Mason.....	Marion.....	1887.....
J. W. Crofford.....	Mercer.....	November 28.....
W. D. Monnet.....	.....	1888—August 28.....
W. W. Norwood.....	Miller.....	1889—January 5.....
E. C. Purcell.....	Monroe.....	1887—May 3.....
G. O. Cuppaidge.....	.....	1888—July 27.....
H. M. Pollard.....	.....	.....
W. B. Hunter.....	Morgan.....	1887—September 1.....
S. Kauffman.....	.....	March 12.....
T. S. Hollinbeck.....	New Madrid.....	May 4.....
J. A. Coffman.....	Newton.....	1887—December 28.....
J. R. Smith.....	.....	March 9.....
T. S. Campbell.....	.....	1888—July 5.....
J. S. Lindley.....	.....	June 6.....
W. B. Heryford.....	Nodaway.....	1887—July 7.....
F. M. Martin.....	.....	November 12.....
J. A. Miller.....	.....	August 29.....
M. H. Street.....	.....	June.....
C. L. Holloway.....	.....	1888—March 17.....
J. S. Taylor.....	.....	March 19.....
E. L. Tunstall.....	Oregon.....	1887—February 28.....
J. M. Wolf.....	.....	.....
Z. T. Blackwell.....	Osage.....	1888—November 1.....
H. T. Byers.....	Pemiscot.....	1887—April 25.....
M. H. Hudgings.....	.....	March 13.....
L. Bard.....	.....	1888—October 19.....
S. H. Steele.....	.....	June 11.....
J. W. Adams.....	Pettis.....	1887—April 30.....
C. S. Durand.....	.....	April 12.....
W. J. Ferguson.....	.....	June 9.....
D. N. Harris.....	.....	April 20.....
E. C. L. Larch.....	.....	November 21.....
J. D. Smith.....	.....	.....
C. M. Decker.....	.....	1888.....
N. J. Rains.....	.....	June 11.....

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
W. J. Crozier	Phelps.....	1888—March 21.....
J. W. Winn	Platte.....	1888—May 7.....
S. W. Cossins	Polk.....	1887—June 11.....
W. S. Hopkins .....	.....	October 15.....
T. D. Wrinkle.....	.....	May 30.....
S. P. Creson.....	.....	1888.....
D. P. Webster	Pulaski.....	1887.....
G. W. Harmon.....	.....	1888—April 10.....
B. T. Taylor.....	.....	May 23.....
D. A. Dobson.....	Randolph.....	.....
W. P. Dysart.....	.....	1887—October 13.....
C. C. Firth.....	.....	September 13.....
M. Green.....	.....	September 8.....
G. G. Levick.....	.....	April 13.....
J. Swigart.....	.....	December 12.....
J. W. Dryborough .....	.....	1888—December 31.....
R. H. Grimes.....	Ray.....	1887.....
G. E. Hamilton .....	.....	March 23.....
W. G. Woodard.....	.....	1888—April 6.....
Lee W. Cotton.....	Reynolds	1888—March 13.....
J. Heath.....	Ripley.....	1887.....
E. H. Brandt.....	St. Charles.....	1888—May 2.....
G. D. Cummings.....	.....	April 19.....
C. J. Hedeman.....	.....	May 2.....
L. W. Cape.....	St. Francois.....	1887—April 15.....
J. A. Bowling.....	St. Clair.....	1888—April 20.....
T. B. Moore.....	.....	May 3.....
H. Bayer.....	Ste. Genevieve.....	1887—April 8.....
E. B. Kenner.....	.....	.....
C. H. Powell.....	St. Louis.....	1887—April 13.....
G. P. Smith.....	.....	July 25.....
F. Keller.....	.....	1888—November 9.....
L. M. Ottofy.....	.....	May 7.....
J. D. Pfister.....	.....	March 19.....
J. B. Fleet.....	Saline.....	1887—June 10.....
J. W. Parsons.....	.....	April 29.....
J. H. Smith.....	.....	April 26.....
J. M. Stouffer.....	.....	April 25.....
R. T. Scott.....	.....	.....
F. M. Wilson.....	.....	1888—April 28.....
E. A. Duncan.....	Shannon.....	.....
W. M. Bayliss.....	Shelby.....	1888—January 14.....
C. Koons.....	Stoddard.....	1887—February 3.....
J. C. Kessenger.....	Sullivan.....	1887—March 15.....
J. M. Sullivan.....	.....	March 14.....
H. T. Mairs.....	.....	.....
D. Stevens.....	.....	1888—April 19.....
D. L. Whaley.....	.....	March 23.....
J. C. Stuart.....	Texas.....	1887—April 20.....
A. J. Berry.....	Vernon.....	1887—April 17.....
L. E. Stanhope.....	.....	April 14.....
A. H. Warren.....	.....	1888—July 19.....
M. Highfill.....	Webster.....	1887—April 7.....
C. E. Muzzy.....	.....	1888—April 4.....
I. B. Garrison.....	Worth.....	1887—February 2.....
W. E. McKinley.....	.....	May 11.....
A. E. King.....	.....	1888—September 10.....
S. Shidler.....	.....	May 30.....
J. H. White.....	.....	July 23.....
F. B. Fuson.....	Wright.....	September 1.....
Wellington Adams.....	City of St. Louis.....	1887—July 19.....
J. L. Babcock.....	.....	May 7.....
Mrs. S. F. Badger.....	.....	April 16.....

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
J. L. Bauer	City of St. Louis....	1887—August 26.....
L. C. Benerman		September 30.....
E. C. Bennett		October 28.....
C. F. Blank		March 14
C. L. Brudewold		April 12
J. H. Bryan		April 12
J. E. Buchanan		March 14
B. E. Buse		June 9.....
G. W. Cale, Jr.		April 15.....
W. T. Chambers		March 22
E. L. Dagley		November 4.....
R. H. Disse		October 1.....
R. T. Ehrhardt		July 28.....
R. T. Etavard		June 11.....
C. H. Eyermann		March 21
A. W. Fleming		April 13.....
H. Froleich		December 26
F. F. Fuller		April 19.....
M. A. Brennan		Not registered...
R. Hahn		February 21.....
John H. Hammond		November 16
R. Hanser		March 21
H. G. Harvey		April 22
T. F. Heller		June 9
J. P. Hennerich		March 12.....
William P. Hill		November 9.....
J. A. Hornsby		December 12
H. M. Hunt		March 16
C. W. Jones		May 7.....
William Keller		September 30....
A. C. Kennel		May 9.....
R. M. Kerley		March 22.....
E. H. Kessler		March 12
R. H. Kilpatrick		March 12
W. V. Kingsbury		April 12.....
O. Kretschmar		March 12.....
H. W. Kriege		September 30....
J. T. Larew		April 25.....
DeC. B. Lindsley		May 19
W. N. Lowry		August 29.....
T. E. McCune		April 16.....
E. Y. Meyer		June 9
G. H. Morrill .....		.....
F. Neuhoft		March 18.....
E. E. Nixor		August 6.....
E. Noble		July 28.....
A. W. Olcott		March 12.....
Mrs. H. P. Phillips		July 1.....
H. M. Pierce		April 14.....
R. Rembe		June 27.....
J. W. Riecke		July 15.....
E. M. Senseney		March 12.....
E. S. Smith		March 15.....
F. R. Benno Von Steinmetz		March 12.....
J. E. Sullivan		April 28.....
R. C. Taylor		October 20.....
N. D. Thomas		March 24.....
B. B. Williams		March 22.....
F. G. Williams		March 16.....
L. F. Worley		March 16.....
F. J. Adams		1888—March 12.....

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
B. G. Allen.....	City of St. Louis.....	1888—July 28.....
W. Bahrenburg.....		August 8.....
B. G. Benson.....		March 12.....
A. L. Boyce.....		March 22.....
A. E. Bradley.....		February 20.....
L. P. Butler.....		April 25.....
C. W. O. Downs.....		June 26.....
H. W. Faber.....		March 21.....
H. R. Fetterhoff.....		July 9.....
W. L. Galloway.....		June 29.....
C. E. V. Gissy.....		January 17.....
M. S. Glick.....		November 14.....
T. A. Gordon.....		October 18.....
W. W. Graves.....		March 13.....
R. F. Gray.....		July 9.....
F. W. Grundmann.....		March 21.....
Mrs. L. Gray Guthers.....		November 1.....
C. F. Hersman.....		March 14.....
F. F. A. Hoogen.....		September 3.....
C. Jaeger.....		March 15.....
J. W. Jenkins.....		December 31.....
M. D. Jennings.....		March 13.....
W. S. Johnson.....		December 14.....
J. L. Jones.....		May 26.....
L. Jones.....		March 15.....
A. G. Jordan.....		August 22.....
H. L. Judd.....		November 30.....
A. Kleykamp.....		March 14.....
Mrs. L. R. P. Knox.....		March 26.....
O. Kollme.....		June 29.....
G. A. Krebs.....		March 13.....
J. A. Krieger.....		March 23.....
B. Lager-Carlson.....		July 17.....
J. M. Lawrence.....		April 6.....
L. Lee.....		March 24.....
F. J. Levy.....		April 25.....
C. W. Lillie.....		February 8.....
A. McDonald.....		March 20.....
H. Frank McGinnis.....		March 12.....
J. McLeod.....		October 23.....
Wm. C. Mardorf.....		March 13.....
H. Meyer.....		April 16.....
G. S. Miller.....		July 28.....
R. L. Moore.....		March 12.....
J. H. Nolte.....		June 25.....
L. Loisel Papin.....		January 6.....
Mrs. Laura L. Randolph.....		September 21.....
J. R. Redman.....		March 12.....
I. Reipschlaeger.....		March 24.....
Wm. P. Rowland.....		March 12.....
Mary U. Sargent.....		March 29.....
H. Sauermann.....		April 12.....
M. H. Scheele.....		March 31.....
H. W. C. Schultz.....		September 6.....
A. Sellner.....		March 12.....
H. Shomber.....		April 10.....
G. Sluder.....		November 10.....
F. R. Smiley.....		June 29.....
Mrs. A. Smith.....		April 25.....
J. B. Smoot.....		January 25.....
H. L. Staudinger.....		October 8.....
L. T. Stevens.....		
J. R. Stiepel.....		

CERTIFICATES ISSUED—Continued.

Name.	County.	Date.
T. Lochlin Taylor.....	City of St. Louis.....	1888—August 27.....
G. H. Thompson.....		March 22.....
L. L. Thompson.....		April 13.....
L. A. Turnbull.....		April 5.....
W. J. Wait.....		February 26.....
F. Walter.....		March 19.....
E. R. Waterhouse.....		October 19.....
G. N. Watson.....		March 24.....
E. H. Wells.....		March 13.....
H. Wells.....		April 7.....
J. T. White.....		March 15.....
H. L. Wichmann.....		March 12.....
E. B. Wilkinson.....		April 16.....
C. L. Wilson.....		March 19.....
E. C. Woodson.....		December 7.....
R. T. Worley.....		May 30.....

MIDWIVES.

Name.	1887.	Name.	1887.
F. Anel.....	June 27.....	E. Jansen.....	July 7.....
C. Bauer.....	June 16.....	A. Korte.....	June 27.....
C. Beck.....	July 13.....	M. Neuhaus.....	December 16.....
M. E. Berg.....	February 7.....	L. Putscher.....	December 16.....
S. Berron.....	June 27.....	M. Rose.....	July 26.....
H. Breidenbach.....	June 16.....	L. Rosat.....	December 16.....
A. L. Bremer.....	June 28.....	M. Ryndak.....	August 15.....
C. Bormiolli.....	December 27.....	A. Schiereck.....	January 5.....
A. Cruson.....	April 30.....	V. Schmidt.....	August 14.....
E. Dinkelkamp.....	December 13.....	P. Schnell.....	June 21.....
L. Erbe.....	January 9.....	F. Schnuck.....	January 19.....
J. Gasthorf.....	December 16.....	E. Seebeck.....	June 16.....
A. Goebel.....	June 17.....	C. Stoelzner.....	June 24.....
J. Grotsinger.....	June 27.....	H. A. Stoffregen.....	June 20.....
A. M. Hassel.....	June 16.....	A. F. Vahle.....	June 20.....
M. Hermann.....	June 16.....	F. Weinard.....	
E. Huber.....	December 31.....		

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M. M. Amann.....	May 2.....	P. Justus.....	June 28.....
L. Martini (now Bor- beck).....	May 12.....	H. Kassing.....	July 2.....
L. Borgading.....	December 27.....	C. Koerner mann.....	August 2.....
L. Buchroeder.....	January 3.....	M. Korn.....	June 11.....
A. Cypress.....		M. Landolt.....	June 14.....
J. Cypress.....	December 11.....	E. Lane.....	January 3.....
M. Daniels.....	April 30.....	H. Lane.....	June 11.....
A. Delfosse.....	January 31.....	C. Merschmann.....	June 11.....
F. Dingler.....	January 7.....	A. Mulcahy.....	December 8.....
F. Duffy.....	December 8.....	M. Oberfell.....	June 20.....
E. Eager.....	September 12.....	A. Pedrini.....	December 8.....
A. Engels.....	September 26.....	M. Peters.....	January 30.....
C. Friedman.....	January 31.....	E. Neuner (now Schindele).....	March 30.....
H. Grundrich.....	June 18.....	M. A. Siverner.....	January 14.....
C. Hagemeier.....	January 16.....	A. V. Dornin.....	October 22.....
R. Hading.....	January 3.....	L. M. Wippern.....	June 19.....
M. Heywood.....	November 30.....	D. Niesen.....	December 8.....
A. S. Holmquist.....	January 30.....		

REPORT ON THE PROCEEDINGS
OF THE
FOURTEENTH ANNUAL MEETING
OF THE
AMERICAN PUBLIC HEALTH ASSOCIATION

HELD AT

MILWAUKEE, WIS., NOV. 20, 21, 22, 23, 1888.

To the State Board of Health:

As your representative, I attended the late meeting of this important body, which, although unofficial in character, is yet made up of all the leading public health officials, local, State and National, in the United States and Canada, and at whose meetings and in whose publications are to be heard and found the latest, best and most authoritative expressions, individual and collective, on sanitary topics to be found in this country.

The session opened Tuesday forenoon with an attendance of about one hundred members, the registration reaching nearly two hundred and fifty before the close of the meeting.

The principal subject for discussion at the morning session was the report of the committee on the Pollution of Water Supplies, who were appointed last year.

The report was read by Major Charles Smart, U. S. A., and was an able and interesting exposition of the dangers to which individuals and human populations are exposed who use water from sources that have been poisoned by sewage—either the supply afforded the family by the domestic well which receives the soakings from the privy, or town and city supplies that are tainted by their own drainage or by that of other cities and towns.

The greatest evil to be feared in this direction was shown to be typhoid fever, the germs of which exist in dangerous numbers in water pure so far as appearance and chemical tests may determine—it being declared that mere filtration or clarification has but little effect upon them. It was stated that 30,000 deaths from typhoid fever occur annually in this country, a very large proportion of which are caused in this way.

The report concluded by submitting the following:

Resolved, That it is the well-considered belief of this Association that it is an imperative necessity, especially in the more populous states, that State Legislatures should give their Boards of Health that financial support which would enable them to act intelligently on all questions pertaining to the public water supplies, investing them at the same time with the supervision of the said supplies, and with power to preserve these waters from contamination by sewage or other injurious matters.

The report was thoroughly discussed, and elicited such favorable comment as to its practical value that it was ordered printed at once. I submit herewith a copy of the same, and would recommend that it be included in the annual report of the Board.

The welcoming address to the Association was made in the evening, at which time also the presiding officer, Dr. Hewitt, delivered the President's address.

It was a comprehensive presentation of the need for practical sanitary work constantly applied for the eradication of the common sicknesses and drawbacks to health that are found more or less in every community, large or small, with a demand that states, cities and towns shall provide the means required for its thorough and effective prosecution, the National government being required at the same time by due vigilance and proper official machinery and equipment to exclude all diseases liable to be imported from abroad.

The session Wednesday forenoon was occupied in hearing and discussing several papers—one by Dr. Gray, health officer of Pittsburgh, who dealt with the subject of contamination of city water supplies by surface drainage, and instanced the deaths and sickness from typhoid fever in certain localities in that city, and showed the cost in cash of such occurrences, and how the investment of a much smaller amount than such a sum total would prevent the disease and almost banish it from the mortality lists.

The money value of the vital waste and loss from a cause so plain and easily removed is over \$500,000 annually, which could be avoided by the construction of water-works to bring in a supply from a pure source and one not liable to surface pollution.

Dr. Baker, secretary of the Michigan State Board of Health, read a short paper on the Classification of Diseases. This was followed by

a paper by Dr. Lee of the Pennsylvania State Board of Health, in which the deficiencies and inefficiencies in equipment and management of a number of the quarantine establishments on the eastern seaboard were set forth.

Dr. Rauch of the Illinois Board detailed at length his experiences with yellow fever last summer, and the dismay and panic caused by its spread, or threatened appearance at different points.

The defects of the present coast quarantine service were instanced and the need of a National Board of Health fully set forth—this, together with more thoroughly equipped State Boards, acting in harmony, and prompt, honest reports as to the occurrence of cases of dangerous spreading diseases, or those suspected to be of such nature.

In the afternoon the members were driven to the newly erected pumping works situated on the upper lake front, which were constructed for a purely sanitary purpose, the abatement of the nuisance caused in warm weather by the almost stagnant and very impure condition of the Milwaukee river, which takes its course through the city. The ridge separating the river and lake was tunneled, and the water from the latter pumped through the conduit in large volume into the river, with the effect to freshen its water and increase the current.

The river outlet is into the lake, and the amount of sewage poured into it daily is great—the question arising whether the relief is not merely temporary, and the fouling of the lake front will in time reach such a degree as to endanger the purity of the city water supply, as has happened at Chicago.

The afternoon session was devoted to different papers—contributions on methods of seaboard quarantine and maritime sanitation, disinfection of ships, etc., being read by Dr. Montizambert, in charge of the quarantine station for the Province of Quebec, on the St. Lawrence river, Dr. Durgin of the Boston board of health, and Dr. Salomon of the Louisiana State Board.

The equipment and appliances for the treatment of infected vessels, and facilities for the detention and care of passengers and crews at the former place, appeared from the description given to be quite complete; while additional improvements are being made at the quarantine station below New Orleans, in order to make the working of the establishment as perfect, effective and expeditious as possible.

A most interesting subject, and one to which special attention had been invited, and for the consideration and discussion of which much preparation had been made, was the destruction of city garbage by fire.

The subject was fully covered in the opening paper by Dr. Kilvington, health officer of Minneapolis, in a paper in which he reviewed

the matter from earliest known times to the present day. He described the different furnaces designed for this purpose, their method of operation, and the degree of efficiency in this respect possessed by the several patents in use in different cities.

There are garbage crematories in operation at Montreal, Wheeling, Chicago, Milwaukee, Minneapolis and Des Moines, all being the invention of different parties; but a perfect furnace for this purpose, able to do all that should be required of it with all kinds of municipal garbage, and without creating a nuisance by bad smells, seems as yet not to have been fully attained to, although the recently completed one at Minneapolis on a plan modified by Dr. Kilvington, on a limited trial as to time, appears to have worked satisfactorily.

At Buffalo, instead of attempting the complete destruction of all vegetable and animal waste by fire, an effort is being made, successfully, it is claimed, to utilize it and save all that is valuable, the grease being economically extracted by means of benzine, the bones reduced to bone meal, the soft animal residue converted into fertilizer, all rags picked out, and other scraps or substances having value turned to various uses.

This question is a most important and practical one in a sanitary sense to every city, as the practice followed in many places of dumping such matters into running streams, or into lakes or the sea, to be cast back on the shore and create a nuisance, is a make-shift for which something better must be found, while the destruction by burning of such quantities of refuse matter that has a high value as manure seems wasteful and unfortunate.

The session Thursday morning was consumed mainly in the consideration and discussion of the yellow fever question.

Dr. Rutherford, health officer of Texas, gave a review of quarantine in that State for the last ten years, and a paper on the outbreak of yellow fever this year at Jackson, Miss., by Dr. Wirt Johnson, secretary of the Mississippi board, was read; also one on a closely allied topic by Dr. Bell of Brooklyn, editor of *The Sanitarian*.

The principal paper, however, and one which held throughout its reading the undivided attention of the audience, was by Dr. Cochrane, on problems in regard to yellow fever and the prevention of yellow fever epidemics.

The views advanced were so sound and the conclusions deemed so wise as to elicit only the most favorable comment in the discussion that followed, and it was unanimously voted to publish the paper at once, in order that it might be circulated as widely as possible throughout

the country, especially in the South, so that its teachings may be heeded before the warm season brings with it renewed danger from the fever.

In the evening an instructive paper was read by D. E. Salmon, chief of the Bureau of Animal Industry at Washington, D. C., on "Tuberculosis: its Origin, Detection and Control." The number of deaths from pulmonary consumption annually in this country was stated to be 131,000, and the influences and agencies that conspire to cause this mortality were considered in the paper.

The various ways in which the bacillus tuberculosis enters the human system and the possibilities of infection from this source were detailed, the chief danger being regarded as arising from the meat and milk of tuberculous animals used as food, cattle being held to be the most dangerous—this, with the inhalation of air charged with the floating germs, being the principal way in which the disease is induced.

During the reading, enlarged illustrations of the organism were thrown upon a screen by means of a lantern, the same method of illustration being used with the succeeding paper by Dr. Theobald Smith of the same bureau on the origin and source of disease germs.

Test tubes containing cultures of different micro-organisms on different substances were passed around for examination, and the progress and direction of researches of this kind, with their practical bearing and value, were pointed out.

The representative of Mr. G. M. Pullman, who has charge of the sanitary administration of the town of Pullman, Ill., was present by invitation, and made a verbal statement regarding the plans and purposes of the founder of this industrial municipality, and how profitable the enterprise had proved as a financial investment, although designed originally as a philanthropic undertaking and not for a money-making purpose.

The sewerage system is built on the most approved plan, and the house drainage, street cleaning, water supply and general policing of the place are looked after with constant care.

The sewage of the city is pumped to a distant point and distributed to extensive truck farms and meadows, where the available organic matter is taken up by the roots of growing vegetation or filtered through the soil, the watery portion being led away by tile drains laid underground and then discharged clear and odorless into a lake. This water has been examined chemically and was stated to be quite pure; no bacteriological examination, however, to determine the presence of disease germs, as those of typhoid fever, has been made.

The decision of the committee on the Lomb prize essay was announced, awarding the prize (\$5,000) to Mrs. J. J. Abel, who presented an essay on "Five Food Products," illustrated by practical recipes.

The session Friday morning was devoted to the election of officers for the ensuing year and the transaction of routine business.

Dr. H. A. Johnson of Chicago was elected President; Dr. Jerome Cochrane, First Vice-President; Dr. Montizambert, Second Vice-President; Dr. I. A. Watson, Secretary, and Dr. J. Berrien Lindsley, Treasurer—all being experienced sanitarians and most of them officers or members of State boards of health.

A resolution offered by the secretary of the New York State Board, declaring that the manufacturers and owners of all secret or proprietary medicines and compounds should be required to file with the State Board of Health, but not for publicity, the formulas of such preparations as are offered for sale, was adopted, the reason being that many compounds containing opium and other poisonous drugs in various forms are sold under names, labels and representations that tend to deceive the public and endanger the health and life of those using them.

Representatives of State boards of health or the health departments of the following States were present at the meeting, viz.: Texas, Louisiana, Alabama, Tennessee, Mississippi, Minnesota, Iowa, Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Missouri, North Carolina, South Carolina, and also the Dominion of Canada and the Provinces of Quebec and Ontario.

The undersigned was appointed a member of the advisory council to represent Missouri, and was also made a member of the Committee on State Boards of Health.

The Association adjourned to meet in Brooklyn next fall.

All of which is respectfully submitted.

GEO. HOMAN.

REPORT OF THE COMMITTEE
ON THE
POLLUTION OF WATER SUPPLIES

APPOINTED BY THE
American Public Health Association

Read at the Annual Meeting at Milwaukee, Wisconsin, November 20-23, 1888.

REPORT.

In its report at the last meeting of the Association, your committee explained in brief the ground of its belief in the harmfulness of sewage in waters used as potable supplies, whether these were derived from wells or larger sources; whether the water supply of an isolated dwelling or that of a populous city. Chemical analysis was shown to be in most instances inadequate to the detection of sewage, unless the sewage was present in unusual quantity, or the water unusually free from other organic matters; and the conclusion was reached that the inability of the chemical methods is of no practical importance, as the presence of sewage in the water supply can be determined by the sanitary inspector; and further, that for protective purposes the knowledge that sewage enters the water is all that seems to be required, because where there is sewage there is danger of typhoid infection.

Your committee desires to give special emphasis to the last stated clause, because it believes that the endemicity of typhoid fever in our cities is in great part due to the sewage in the water supply. Many of our public water supplies contain sewage, and its harmfulness in a general way is unquestioned even by those who have a financial interest in them. Yet there appears to be a hesitancy to acknowledge the real, the specific danger. Typhoid fever is present in all our cities, giving annual death rates of from 15 to 100 and over in every 100,000 of the population; but in the enumeration of its causes, its prevalence is ascribed to many insanitary conditions before mention is made of the public water supply. It is allowed in certain local epidemics to be propagated from wells which have become infected by an infected sewage, but the sewage in the public supply is seldom considered other than as a sentimental objection to the use of the water. It is allowed in many instances to arise from leaks in the plumbing of houses, by which exhalations from infected sewers reach the interior of the dwelling, but the water supply into which the sewage of these very sewers is poured is used without a thought of its deadly qualities, unless, as in the case of Plymouth, Pa., the fact is forced upon the public mind that a public water supply has as little disinfecting power over the germs

of typhoid fever as the private water supply of an infected well. Health officers condemn the well, and generally it is closed as soon as it is found that sewage percolates through its area of drainage; they should condemn the public supply on the same grounds.

The large financial interests involved in the establishment of a public water supply may be assumed to be at the bottom of this hesitancy to acknowledge the specific danger attaching to the presence of sewage. Millions of dollars, perhaps, have been invested in that water supply, and many more millions would be required to replace it by water from a purer source. These large sums are alone considered, and not the vast and annually increasing totals of the loss by sickness and death that might have been prevented. A public or private well involves but a small sum—so small that it does not stand in the way of sanitary progress. It is closed, and with its closure one more possible center of typhoid infection is removed; but the decreasing influence exercised by this on the annual rate of prevalence is small indeed if the public supply continue to disseminate the disease. The dollars and cents represented by the existing water-works may be regarded as a barricade to sanitary progress, or an altar on which typhoid fever sacrifices its victims.

The efforts that have been made from time to time to quiet the public mind by demonstrating the destruction of sewage and the self-purification of the water which contained it, are in part attributable to these financial interests; but only in part, for many sanitary inquirers have been deceived by partial or imperfect observations. Unfortunately, however, those analysts who have had much practical experience in following the track of sewage in its passage down stream recognize in this so-called self-purification only the results of sedimentation and dilution. Undoubtedly the natural processes of purification—the transformation of organic matter into ammonia, and the nitrification of the latter—operate in the current of a running stream; but these account for but a small proportion of the seeming purification, and there is no ground for supposing that the infectious principle of typhoid fever is given up to the action of these purifying agencies. We acknowledge that typhoid fever is propagated by an infected sewage in a well water when all organic trace of the sewage has disappeared through the instrumentality of the agencies referred to. There are two kinds of organic matter in the dangerous sewage—matter which, by the absence of life, is given up to decomposition and reduction to harmless inorganic forms, and matter which by its vitality is preserved from these influences; and we acknowledge that in the well water the former may be reduced, while the latter retains the full measure of its virulence.

Analogy shows conditions of a similar character affecting our river supplies, and the seeming apathy with which they are regarded, can only be accounted for by assuming that individually we have fought against the barricade erected by the dollars and cents, and been defeated by its solidity and strength.

In this country the relation between distribution of a water which contains sewage and the prevalence of typhoid fever can be readily observed by any one who studies the mortality returns of our cities in connection with the character of their water supply. The records in many instances are complete and trustworthy for the past twenty years. Brooklyn, New York City, Boston, Cincinnati, Philadelphia, etc., have a death rate from typhoid fever proportioned to the quantity of sewage which enters their water supplies. Where the water supply, as in the first mentioned city, is free from sewage, the death rate is low, about 15 in every 100,000 of the population, these cases being due to indirect infection and other local causes. When care is exercised in excluding sewage from the water-shed which furnishes the public supply, there is a corresponding freedom from typhoid fever, as in New York, which has a rate of 25, and Boston, which loses about 40 annually for every 100,000 of her people. In Philadelphia and other cities, in which less attention is given to the purity of the public supply, the typhoid death rates are correspondingly increased. Moreover, the records of some of these cities give interesting information when viewed in connection with the history of the water supply. The city of Baltimore has had a steadily diminishing rate since its water supply was first introduced, and this decrease has been more notable since 1880, when the supply was largely extended. And this same city of Baltimore shows that its improved condition is not due to the introduction of a system of sewerage, but to the use of a purer water than was formerly furnished by its infected wells. Ordinarily a sewerage system and public water supply are contemporaneous improvements, and heretofore any benefit to the health of the community has been credited to the sewerage, although it seems as if the inflow of a wholesome water had really more to do with the lessened death rate, for the small typhoid rate of New Orleans, Louisiana, cannot be attributed to the sewers of that city, since it has none; but it may be attributed to the water supply, for that consists of rain water, which is free from sewage, inasmuch as the cisterns in which it is stored are not sunk in the soil, but raised considerably above the surface.

Testimony of a similar character has recently been developed by the experience of Vienna. In that city, from 1851 to 1874, well water of an impure character was used to a large extent, in addition to a sys-

tematized supply from the Danube. During this period the deaths from typhoid fever ranged from 100 to 340 annually in every 100,000 of the population. In the last mentioned year a spring water was introduced, and the death rate from typhoid fever fell immediately to 50. Since then, by the disuse of impure wells and the extension of the new supply, the rate for the past three years has fallen to 11; and, inasmuch as the sewerage system was in existence during the period of high rates, the fall since 1874 is necessarily referred to the use of a water which is free from sewage. The fall in the typhoid rate experienced an interruption in 1877, when, owing to the freezing of some of the sources of the spring supply, the water of the Danube had to be pumped into certain of the mains; and it is of importance to observe that the sections of the city which were chiefly affected by this epidemic were those in which the Danube water was distributed. According to Professor Nothnagel, typhoid fever has become such a rarity since the introduction of the spring supply that when a case occasionally comes to hospital from outside the city, he shows it to the students as one of unusual interest.

In the face of such testimony to the influence of a pure water on the typhoid rate, we cannot shut our eyes to the relation that exists between sewage in our streams and typhoid fever in the cities that are supplied by them, no matter how great may be the financial interests that are involved or sunk in the contaminated supplies. Now comes the question, What are the measures that have been or should be adopted to lessen the evil?

As a rule, the only effort made by our municipal authorities and water companies to purify our public supplies is by sedimentation. They select a pond which forms a natural sedimenting reservoir, or they throw a dam across a stream to form an artificial one, or, in the case of large water-courses, they pump directly from the stream into specially prepared basins. Primarily these basins or reservoirs were intended to facilitate distribution and guard against a temporarily inadequate flow in the stream which furnishes the supply; but they were found to answer the purpose of clearing, and to that extent of purifying, a turbid water, provided they were large enough to permit the water to remain undisturbed for the needful length of time. When it is proposed to have additions made to the water supply of a city, the construction of new basins is usually implied. As an instance, there are now at the city of St. Louis, Missouri, four settling basins, holding eighteen million gallons each. The floors are paved with brick on edge, and slope toward the center and the river side. The sediment is floated off from the floor of each basin once in about four months, the quantity removed annually

amounting nearly to 200,000 cubic yards. The wants of the city permit the water to settle only from eight to eighteen hours, while a period of thirty hours is required for a satisfactory subsidence. On this account an extension of the work is at present in contemplation. Surveys have been made, and land purchased, for larger settling-basins and conduits to carry the water to the present high-service or clear-water pumping plant. The estimated cost of these improvements is three and a half million dollars.

The storage of a turbid water in such basins undoubtedly tends to improve its quality. No argument is required to show that the St. Louis water is better with its suspended matters at the bottom of the reservoirs than choking the distributing pipes, collecting in every containing vessel in the city or settling in the alimentary tract of the water consumers. The subsidence of the inorganic matters which constitute the mass of the turbidity carries down a considerable proportion of the associated organic materials, and the clear water gives markedly better results as well on chemical analysis as on bacteriological examination.

Chemically considered, the tendency of the cleared water is to further purification. Organic matter steadily diminishes in quantity, and is replaced by ammonia and nitrates; but as this is effected by bacterial agencies, biologically the stored water progressively deteriorates after it has become clear by sedimentation. The bacteria increase at the expense of the organic matters which they destroy. A water which every chemist and every bacteriologist would pronounce a fair sample of potable water will be found, after a week of storage, to be swarming with bacteria. Daily experience forbids the condemnation of a good water merely because it has been stored for a week; yet the bacterial colonies that may be developed from it are infinitely more numerous than those that are found in a water which is impure even to the senses. Indeed, the bacteria in an ordinarily pure water, after storage, may be vastly more numerous than in another portion of the same water, intentionally contaminated with sewage or other impurity, and similarly stored for the same length of time. This it is which deprives the bacterial cultivations of that value which but a short time ago they were expected to develop as indices of the wholesomeness or unwholesomeness of a water. A chemical evidence demonstrating a tendency to purification by the conversion of organic matter into nitrates, through the instrumentality of the bacteriological organisms, is more consistent with every-day observation than the bacteriological evidence which suggests unwholesomeness by demonstrating the numbers of the bacteria.

But although the general tendency is to the reduction of organic matter in stored waters, it often happens, particularly if the water is rich in ammonia or easily decomposed albuminoids, that vegetable growths other than bacteria will be developed, giving a bad taste or odor to the water, and perhaps causing diarrhoea in the consumers. These, which may be considered the accidents of storage, have been studied by many health boards and water companies; and the influence of heat, aeration, exposure to sunlight, etc., on their development, has been determined with practical benefit in many cases.

Sedimentation is sometimes an exceedingly slow process, particularly when the mineral particles consist of finely divided clay. A week or more is required in some instances to give a clear water, and this involves a large expenditure for storage basins. Hence, many have turned their thoughts to filtration as a prompt and efficient means of purification. Filtering beds are in general use in England, but in this country they have been constructed only by a few cities, and in an experimental way. The results do not appear to have been satisfactory. The expenses attending them are large, and the coldness of our winters begets difficulties which have not to be encountered in the milder climate of England.

But the failure of filtration on the large scale, and the imperfect results of sedimentation as carried on in the reservoirs, have given an impetus to the construction of filters for domestic use; and the success which has attended attempts to supply a clear water to manufactories and other large establishments has gradually led to more ambitious efforts. Of late some municipalities have investigated the means by which this filtration is effected; and the ability of the filters to supply a clear water on the large scale appears to have been demonstrated. As the method is patented, a certain hesitancy has been manifested by members of the Association in referring to it; but, patented or not patented, if it have a value above others in supplying a pure water, we should have full accounts from such of our members as have a practical knowledge of its operations in all their aspects. A member of the American Water-works association did not hesitate, at its last meeting, to invite attention to the success achieved at Atlanta, Georgia. He expressed himself as knowing but little of the chemical improvement that took place in the quality of the water, but so far as the mechanical results of the filtration were concerned he was perfectly satisfied. The surface of the water in the impounding reservoir is nineteen feet above the layer of coke and sand which constitutes the filter-bed, through which it is carried by gravity into the clear-water basin. The reservoir water is generally so muddy from red clay and

other suspended impurities that it is rarely fit for bathing or laundry uses; yet in the clear-water basin small objects may be plainly seen through it at a distance of twenty feet. The capacity is three million gallons daily, although the quantity actually filtered for distribution at the time of the report was only two million gallons. The cost of the filters and clear-water basin was \$55,000, and the daily expenses eight dollars for alum and two dollars and fifty cents for labor.

So much experience has been gained in the construction of these filters that filtration can no doubt be effected more rapidly and economically under the supervision of the patentee than on new plans which must be at first regarded as merely experimental. But if the attention of boards of health, water companies and sanitary engineers were directed to the development of the best filtering plant, other and better methods might be suggested and carried into practice; or, if the patent process were proved to be superior to all others, the ability to express a prompt approval would be substituted for our present hesitancy. The passage of water through a filter-bed, the regular cleaning of the filtering material, and the addition of alum, iron, lime, or other precipitant, to the water, are the essentials of the process; but the patents necessarily cover only the specific mechanism by which these are brought into operation in that particular process. The natural laws of filtration, and of mechanical and chemical action, are open to the ingenuity of the world.

Recently Mr. L. H. Gardner, of New Orleans, has been experimenting on the large scale with solutions of iron, not as an adjuvant to filtration, but to hasten sedimentation in the settling basins. Iron as a precipitating or filtering agent has been used in various forms and to a considerable extent, on the large scale, as a water purifier since Medlock, in 1857, patented a process in which water was treated by contact with metallic iron. Spongy iron attained even a popular repute as a filtering material, but at the present time in Europe it has been displaced by the Anderson process, which is said to be in successful operation at Antwerp, Ostend, Paris and Vienna. The water in this process is first partially sedimented and then forced through a revolving purifier consisting essentially of a wrought-iron cylinder mounted on hollow trunnions, which serve for inlet and outlet pipes. Curved ledges, running lengthwise of the cylinder on its inner surface, scoop up and shower down fine borings of cast iron through the current of the water. By the combined action of the cylinder and the water current every portion of the latter is brought into contact with the iron, the particles of which are kept constantly bright by friction against each other and the sides of the cylinder. After this the water is passed

through sand filter-beds to remove excess of iron. The results claimed are that the organic matter is altered in its chemical nature, and the albuminoid ammonia lessened from one-fourth to one-half of its original amount; that the water is softened, the scale in boilers becoming greatly reduced, open, friable, and loosely adherent to the plates; and that the microscopic life of the water is, to a large extent, destroyed or removed. At Antwerp the quantity of water thus treated is two million gallons daily, and the engineer in charge of the works and the municipal authorities have expressed their satisfaction with the results attained.

The various methods of purification by iron that have been tried in Europe involve the contact of the water with natural or prepared ore or cast-iron borings or turnings, with a subsequent filtration through sand to eliminate any excess of iron; but Mr. Gardner has suggested the introduction of a solution of iron in the precise quantity needful for the desired purpose. He tried a solution of red hæmatite ore in hydro-chloric acid on Mississippi water at the New Orleans water-works, and the clarified water gave satisfactory results to Professor Chandler, of New York, and other chemists. Later he treated a body of thirteen million gallons in the St. Louis settling basins. The solution used, the water in various stages of precipitation, and the clear resultant water, all met with favorable reports from the analyst. The action is chemical, not mechanical. The combinations of lime and magnesia in the Mississippi water become converted into chlorides by the chlorine of the iron solution, and the precipitated oxide of iron settles promptly, carrying the suspended matters with it, and leaving the water clear. A solution of the specific gravity 1.6 in the proportion of one part to 20,000, clarifies the muddiest of river waters without hardening them or leaving in them any excess of the precipitant. The Mississippi water at New Orleans can be thus clarified by a rest of eight hours in the reservoir, at an expense of one cent for every thousand gallons. Mr. Gardner's object at the present time is to procure a cheaper iron solution.

In the efforts to attain to a prompt and efficient method of purifying water by sedimentation or filtration, with or without the use of precipitants, it is of the utmost importance that the object of the purification be kept steadily in view, lest we fall into the error of supposing that the end has been accomplished when a clear water has been obtained. The agents of a certain patent filter place in the show windows of some prominent store two companion glass jars, one filled with an opaque and discolored turbidity overlying a stratum of heavy sediment, and labeled "Water taken this morning from the public

mains;" the other, sparkling like a consolidation of dew-drops, and labeled "The public water after passing through so-and-so's filter." A glance at these gratifies the passer-by, by seeming to instill into his mind so much sanitary knowledge. They sow seeds of reflection which develop and multiply with bacterial fecundity, so that in a few minutes they have done the work of an octavo pamphlet on "Potable water—its impurities and the methods by which they are removed." But the sparkle of the filtered water, although honest in itself, hides a fallacy which undermines the whole of the suggested argument. It must be remembered that clear waters are not necessarily wholesome waters. Their sparkle is no proof of their purity. From the laundresses' point of view, or the paper-makers', the result is satisfactory; but the object of the filtration of a water supply for domestic or public service is its wholesomeness when used for drinking, and its transparency gives no testimony on this subject.

During sedimentation the heavier and grosser particles of mineral matter readily subside, and carry down with them much of the flocculent organic matter which would otherwise continue in suspension for many days. The effect of sedimentation at St. Louis, Missouri, has been mentioned, but it will perhaps be better appreciated when stated in other words. The lake supply of Cleveland, Ohio, which is usually of excellent quality, is occasionally turbid, particularly during the spring months. When in this condition of turbidity the twenty million gallons which are distributed daily contain ten and a-half tons of suspended matters, and the odd half ton consists of decomposing organic substances. Who will say that the city of Cleveland would not be benefited if it did not have that daily distribution of half a ton of semi-putrefaction? But sedimentation does more than free the water from suspended matters. During the so many hours or days of its continuance the processes of nature are at work transforming the semi-putrefied matters into ammonia and nitric acid, both of which are harmless in the quantities present. The purifying influence of sedimentation may be easily determined by chemical analysis, and in many cases it is so marked as to render the process of infinite value in the absence of a better method.

Most surface waters, which are turbid from particles of mineral matter, contain the germs of nitrification, and the process of purification takes place in them during storage; but if these germs be absent, months may pass with but little improvement in the character of the stored water. Hence, cisterns which do not contain these bacteria have usually a less pure water, as judged by the ammonia and albuminoid ammonia which it yields, than those which do contain them.

Where wooden tanks, as at New Orleans and other southern towns, are used for storage, it is a common occurrence for the analyst to find water of poor quality in new or recently cleaned cisterns, while water of a much better quality is discovered in those that have not been cleaned for a year or two, and have a fermenting sediment a foot or more in depth covering their floor. The nitrifying agencies accumulate with the sediment, and notwithstanding the sediment, they succeed in reducing the organic matter of the water to the inorganic condition. The sediment is thus an advantage, but the end is better accomplished by keeping it out of the cistern and introducing the bacterial workers through the medium of a layer of clean gravel or sand.

But withal, it must be remembered that it is only organic matter in a state of decay that is thus reduced to the inorganic condition, and only organic matter in a tangible form that is thus carried down by the heavier particles of the mineral sediment. Organic matters that are endowed with vitality remain uninfluenced by the destructive and reconstructive bacterial agencies that are operating in the water; and these, as has been seen, are the matters from which most is to be feared if sewage has unfortunately had access to the supply. The infected water which prostrated 1,200 of the 8,000 inhabitants of Plymouth, Pa., and killed 130 of those whom it prostrated, passed through three storage reservoirs on its way to accomplish its deadly mission.

Nor is filtration more efficient as a purifier when viewed from the stand-point which sees typhoid fever disseminated by an infected sewage in the water supply. A satisfactory filtration removes the haze or cloudiness which may pervade a sedimented water for days after the grosser particles have subsided, and in so far its results are better than those generally effected by sedimentation. The finer particles of clay, some no larger than barely distinguishable molecules under the ordinary working powers of the microscope, are removed, and with them organic shreds of similarly minute size, and even many of the bacterial germs which were present. A water thus freed from foreign matter in suspension seems to offer the luster of its transparency as a voucher or visible symbol of its purity, and chemical analysis may show in it only the merest trace of organic matter in solution, for the process of decomposition and recombination of the organic elements take place with much greater rapidity when the water percolates through the pores of the soil, as in the natural process of filtration, than when it is merely stagnant in a reservoir or flowing in the current of a stream. It is now well known that the bacterial agencies which effect these changes have their habitat in the three or four feet of soil which constitutes the surface of the earth, and that in soaking through this layer

the organic matters of a water are transformed into matters which the roots of living plants can absorb and assimilate. Chemical analysis may therefore show in such a water merely the small quantities of ammonia or nitric acid which are the results of this bacterial action, and the water may be claimed to be pure on much stronger evidence than can be advanced on behalf of any water which is massed on the surface in a lake, pond, river-bed, or settling-basin—these surface waters having at work in them only those straggling bacteria that have been washed from their habitat in the soil into the current of the stream. In fact, so far as can be demonstrated by chemical tests, the naturally filtered water may be free from everything of an organic nature.

In view of our knowledge of the conditions needful to a perfect natural filtration, it is impossible to allow that artificial means, operating after nature's methods, will ever produce as pure a supply as can be procured in suitable localities by digging a hole in the ground. Comparatively speaking, only a small quantity of rain falls on a stated area—a depth of so many inches during the course of a year—and of this a large proportion is turned aside for the general police of the surface, and, having fulfilled its mission, is carried off by surface channels to the ocean, while another part of the fall cools the over-heated surface of the soil by its evaporation, and gives the air that proportion of moisture which is needful to the continuance of life under present conditions. Only a few inches of the annual rainfall penetrates the soil, and, escaping the roots of the living vegetation, collects on the surface of some impervious stratum as the surplus water poured into a flower pot drains into the saucer below. Artificial filtration has neither the time nor the surface to effect percolation after nature's method. Filtering beds of gravel are prepared which permit more water to pass through them in a day than nature percolates through the same area in a year, or special filters are constructed which transmit, under pressure, as much water in half an hour as nature purifies on the same area annually. The bacteria of nitrification cannot be harnessed to the work of artificial filtration, and hence the results of such methods, although manifesting a satisfactory freedom from suspended matters, can in no instance compare with the organic purity which characterizes the spring and well waters that are found in the laboratory of nature. Since the bacteria of the artificial filtering-beds are unable to deal with the organic matters dissolved in the percolating water, it is needless to expect them to reduce the masses of organic matter which in progress of time clog the filter with their accumulated foulness, and lessen its efficiency as a filtering medium. The artificial filter cannot, therefore,

furnish a water which will be as pure as a naturally pure water. In fact, artificial filtration amounts to little more than the mechanical separation of a water from its suspended particles, while the essential of natural filtration is the thorough nitrification of the albuminoids of the water, the removal of suspended matters being incidental and merely secondary.

The decay of once living organisms, animal or vegetable, gives more or less taint of a putrefactive nature to the surface waters of the earth, and this taint, when of sufficient strength, is known to induce diarrhœal tendencies in the human system. Moreover, among the fermentations which take place during the destruction of organic matter, is one which gives origin to an influence—the malarial—which is always disabling, and often deadly, to human life, pervading the surface waters to a dangerous extent, particularly in warm climates and seasons. By the process of filtration nature removes both the putrescent and malarial taints from the water, yielding a supply which is held to be pure and wholesome by the ever-increasing testimony of the generations of the world. The malarial influence is attributed to a micro-organism. If this view be correct—and the tendency of medical science is to accept it as the only theory which gives a satisfactory explanation of the malarial phenomena—the vitality of the germ should preserve it from the putrefactive and nitrifying agencies, for these operate only on dead matter. It is therefore probable that only the mechanical part of the process of natural filtration is concerned in the removal of the malarial influence from a water, and that an artificial filtration which gives satisfactory mechanical results will be of value in the prevention of malarial disease.

Although the bacteria of the soil do their work so thoroughly that no chemical trace of existing organic matter can be found in the percolated water, it sometimes happens that this water is unwholesome. When collected at a distance from the haunts of man, it is as pure as it looks, for nature's methods always suffice for her necessities; but where the activities of human life create artificial conditions, such as result from the aggregation of individuals in cities and towns, her methods fail because they cannot be carried out. The soil becomes more and more contaminated by animal excreta, and the wells reservoirs in which are collected the leachings or washings of this impurity. If the impure soil be colonized by the infection of typhoid fever, it is immediately converted into a breeding ground for the germs of that disease. The vitality of these germs preserves them from putrefactive agencies, and their size seems to offer no obstacle to their passage through the soil. They therefore drain into the well, and confer upon its clear waters powers of a most deadly character. In the records of sanitary science

are to be found many epidemics of typhoid fever chargeable to wells that have become contaminated by sewage. Indeed, the more the transmission of typhoid fever is studied, the more evident it is that the water supply is the main agency concerned in its propagation. Hence, sanitary officers have not only closed up wells into which sewage has entered, but those which, from their situation, are merely exposed to this danger.

Since natural filtration is powerless against the infection of typhoid, it is evident that artificial methods can give no guaranty of protection.

The purifying influence of precipitation by means of such chemicals as alum, iron or lime can readily be demonstrated by chemical analysis. The hydrated alumina, ferric oxide and lime carbonate, as they materialize into particulate existence from their solution in the water, entangle and carry down with them organic particles that would otherwise be less easily removed; and biological research shows that bacterial germs are swept from the water in like manner. That this operation is imperfect is demonstrated by the number of colonies which can be developed from the cleared water; that it is purely mechanical and not germicidal is indicated by our experimental knowledge of the action of such substances on various bacterial organisms, and by the fact that their presence does not exercise even an antiseptic influence on the bacteria of the water, as the number of these bacteria subsequently increases in the cleared water as rapidly as in a stored water which has had no such chemical treatment. The commercial interests concerned in artificial filtration invest these substances with the title of coagulants, as if the albuminoid constituents of inorganic life curdled into a bacterial *rigor mortis* as soon as the water became pervaded with the presence of the precipitant; but there is no warrant for a belief in any protective virtue other than that connected with a mechanical entanglement and precipitation.

The processes of purification that have just been reviewed remove suspended matters and more or less of the dissolved saline and organic substances that are present in the water, but none of them can lay claim to the removal or destruction of the causative agencies of the acute infectious diseases that are known to be propagated by an infected water supply. These processes have been closely studied by the English sanitary authorities, who long ago came to the conclusion that sewage in a water is harmful, because it may contain the germ of cholera or typhoid fever, against which the most efficient method of artificial filtration constitutes no effective safeguard. Hence, the object of sanitary legislation in England is not to preserve the rivers as a drinking supply, but to prevent them from becoming a nuisance in their

character of open sewers. The solids of sewage consist of a highly nitrogenized organic matter, the proper disposition of which in the economy of nature is as materials for the growth of the vegetable kingdom, and, if these be separated, the water may be purified by percolation and filtration and returned to the rivers. Sewage has accordingly been treated in various ways for the separation of the solids and the reclamation of its water. In country houses and small communities a cess-pool can be provided for the disposition of solids, the liquid overflow being conveyed by drain-pipes into the soil. The effluent water in such cases may be as pure to chemical tests as that of the stream into which it is discharged. But as communities grow the difficulties attending the disposition of their sewage are proportionately augmented.

Various methods of precipitation have been tried with the view of paying expenses by the sale of the solids as a fertilizing material, while the separated liquids are turned into the water-courses, with or without an intermediate filtration through the soil. Sewage irrigation has also been tried on the large scale, and in many instances with satisfactory results. The advocates of irrigation point with considerable enthusiasm to the purity of the effluent water, and consider that this system will ultimately settle the vexed question of the disposition of sewage; and, indeed, such is the purifying influence of the soil that the clear water of the outflow gives readily good results on analysis. But, as we have seen in speaking of sewage-polluted wells, the purity which is evidenced by chemical tests fails to give an assurance of protection from typhoid fever, and it is this protection, not chemical purity, which is the object in view. These advocates claim that typhoid fever does not prevail in the fields which receive the sewage of an infected city, but it is the propagation by drinking water, not by exhalation, in which we are interested, and typhoid fever is known to have prevailed on fields where the effluent water was used for drinking. Indeed, how could we expect otherwise, when we know that typhoid fever is propagated by an infected sewage in a well water which has undergone a more efficient filtration through the soil than that to which the sewage is subjected in the irrigating fields, or when we remember that the spring waters which occasioned the epidemic at Lauzen were derived from a sewage-polluted stream spread over the fields of an adjoining valley for purposes of irrigation?

In view of the considerations which we have thus briefly reviewed, we cite the opinion of the English commissioners to give it greater emphasis, as reaffirmed after the passage of years, which have added much to our knowledge of the propagation of infectious diseases by means of

the water supply: "Of all the processes which have been proposed for the purification of water, or of water polluted by excrementitious matters, there is not one which is sufficiently effective to warrant the use, for dietetic purposes, of water which has been so contaminated. In our own opinion, therefore, rivers which have received sewage, even if that sewage has been purified before its discharge, are not safe sources of potable water." A water to which sewage has access should from that fact alone be excluded from all further consideration as a possible water supply for drinking purposes.

The introduction of a water supply into a growing city is ordinarily only a question of money. Engineering difficulties fade into insignificance when surveyed from a satisfactory financial standpoint. It is often said to be beyond the power of money to purchase health, but the sanitary student can readily demonstrate that in many cases this is not so. Money expended in the distribution of a wholesome water supply will purchase health for the thousands who otherwise fall victims to the fever which is endemic in our cities and towns. Typhoid fever is a disease to which every one is exposed. The susceptibility to it is inherent in our constitutions, and, so far as we know, immunity can be purchased only by submitting to attack. Ordinarily the human constitution succumbs to its influence before maturity is reached, but if up to that period we fortunately escape, we have no assurance of future immunity. Uncertainty overhangs us like a cloud. Danger is as present with us in the daily routine of our peaceful lives as on the battlefield, only that the embodiment of evil is an invisible and intangible germ instead of a fast-flying bullet. Danger flows beside us in our streams, in our mains, from the taps in our houses. The germ of the disease may not be in this pitcherful or in that, in this tumblerful or in that, but it will find us some day if we continue to use the water which contains it. In a town of 50,000 inhabitants one victim is taken daily, and as the average duration of this disease is about a month, there are always in that city thirty persons whose lives are unnecessarily trembling in the balance.

What is the local suffering from yellow fever in Jacksonville, Pensacola or New Orleans, once in so many years, compared with the totality of the destruction caused by the steady progress of this general and ever-present scourge? Thirty thousand people die of typhoid fever annually in the United States of America, and Vienna lowered her losses by this fever from 340 to 11 annually in every 100,000 of her population by introducing a spring-water supply instead of the sewage-tainted waters of the Danube. Calculate the loss by sickness associated with these 30,000 deaths—the loss of work, the unprofitable work

of nursing, and the actual outlay necessitated by each visitation of the disease—and you will find that saving money by drinking sewage in the water supply is a penny-wise policy that in the long run will fail to pay even for the funerals and the mourning goods.

In many instances it is, on this continent, an easy matter to obtain a suitable supply for a community. Some neighboring lake offers itself as a natural reservoir, requiring only the construction of conduits for the transmission of its waters; or an artificial reservoir may be formed by damming certain of the radicles of a neighboring stream. The drainage area of this supply must be kept under the closest supervision by the sanitary authorities of the community, for it is not enough to obtain a supply which is free from sewage: it must be kept so. Constant vigilance is the price of safety. The sanitary inspector should be ever on guard and familiar with every square yard of the surface, and the health authorities should be empowered to protect the many against the carelessness or wanton encroachments of the few. The question of water supply is here reduced to its simplest terms: the raising of sufficient money to bring in the wholesome water, and the investment of the health officer with power to preserve the wholesome quality of the public supply, and to prevent the use of water from sources which are known to be unwholesome.

In other instances, it is difficult to obtain a suitable water supply. The whole face of the country has been more or less settled, and the natural drainage of every valley brings sewage and manufacturing waste into its outflowing stream. Nevertheless, now is the time to act, for these unfavorable conditions will increase and multiply in the future, so that what may be done now cannot be done then without a tenfold expenditure of time and money. Fortunately, when difficulties occur from the density of the settlement, there is also more wealth to meet the increased expenditure, but it is beyond the power of that wealth to give life to those who have in the meantime fallen victims, or consolation to the hearts that are in mourning. What is to be done should in all cases be done at once. It is we who are interested in this matter, now, in our own time and generation; for what does it avail us that the city is supplied with pure water ten years hence, if at that time it be remarked of us, Oh, yes, I remember him well; he died of typhoid fever eight or nine years ago. And it is an easy matter to so arrange the financial burden that part of it shall fall on those who will hereafter participate in the benefits.

In well-settled sections of the country it may be impossible for the towns and villages to obtain a water free from sewage in their main streams or their neighboring tributaries, and equally impossible for any

one of them to go to the nearest sources of pure water for a supply, but those favorably situated for combined action may easily perfect their arrangements for bringing in the water from long distances. Nor should it be forgotten that if water free from sewage is not to be obtained on the neighboring surface, it may sometimes be found beneath the surface, as at Brooklyn, L. I., or, more notably, at Memphis, Tenn., where, after a thorough investigation of the whole subject by a committee of citizens, it was ultimately developed that they had a source of the purest water within a hundred yards of their domestic hearths.

Many communities have a water supply which was pure enough when originally introduced, but which has become dangerous by the subsequent growth and development of which it formed the nucleus. A water-bed or basin cannot be used for concurrent purposes of water supply and sewage discharge. If the drainage area be given up to settlement and commercial enterprise, with their consequent sewage and manufacturing waste, the city must be prepared to find another source of supply for its daily wants, or pay the penalty of an increased death rate from preventable disease. In the race for material prosperity this penalty is too often forgotten, and the endemic fever is regarded as one of those visitations of Providence that are inevitably consequent upon conditions of aggregation. Yet every intelligent medical man knows the fallacy of this reasoning, and that the progress of this malady can be checked by suitable measures as surely as exotic disease can be kept out of the country by properly enforced restrictions on commerce. To permit the citizen to enjoy life, which, according to the constitution of the United States, is his right, the most stringent laws should be enforced to preserve the purity of the supply of drinking water; or, if the settlements on the area are too valuable to be destroyed, a new source of supply should be obtained and guarded.

The protection of the citizen requires that every advantage be taken of our knowledge of the natural history of the typhoid infection, that it may be destroyed before reaching any of our water-courses. It is well enough to insist upon the purification of sewage by processes of precipitation, filtration or irrigation before its water is delivered into the natural courses, for thereby the latter will be prevented from falling into the condition of open sewers, which is the lot of so many small streams in well-peopled districts; but these processes cannot be depended upon to remove the typhoid infection. This infection passes from the patient to our surface waters directly by the sewers, or it drains through the soil with the subsoil water, and reaches the surface on some lower level. Of course, in either case it may be lost in the mass of water in which it is diffused, but it was not so lost at Plymouth

nor at Lauzen. To protect the citizen and stamp out this fever, it should be made the duty of every medical man who attends a case of fever to see that the excreta are disinfected before being consigned to the sink, cess-pool or sewers, and the utmost care in this regard should be taken in cases occurring on a water-shed which is utilized for a public supply. So far as our knowledge goes, sewage would be deprived of that which, under ordinary conditions, constitutes its only dangerous element, were this system of bed-room disinfection efficiently practiced.

Local authorities, such as water companies and boards, citizens' committees, health boards and commissioners, should exercise a jealous guard over the public water supply; but in many instances these would be powerless without the intervention and co-operation of the authorities of the State. Massachusetts, Illinois and Minnesota have already taken steps in this direction. In the first mentioned State the Board of Health is invested with general supervision of the water supplies. No sewage, drainage, excrement, or other refuse or polluting matter of such kind or amount as—either by itself or in connection with other matter—will corrupt or impair the purity of a water used for domestic purposes, is permitted to be delivered into a water-course or any of its feeders within twenty miles above the point where a water supply is taken. Upon the application of a city or town to the Supreme court, alleging the pollution of its water supply in violation of law, an injunction may be issued, or the polluting substances required to be so cleaned or purified that they shall no longer be deleterious. The limit of twenty miles in this law is a defect, but sanitary legislation is a thing of slow progress, and our friends in Massachusetts undoubtedly secured as much as was possible for them to obtain at the time.

The board is required to examine the waters from time to time, for the purpose of ascertaining whether they are adapted for use as domestic water-supplies, or are likely to impair the interests or imperil the health of the public. It is required to conduct experiments to determine the best practicable methods of purification, of drainage, and of the disposal of refuse, and to recommend measures for the preservation of the purity of the waters. Moreover, it is the legally constituted adviser of cities, towns, corporations, firms or individuals, in matters pertaining to the introduction of water supplies or sewerage systems, making use of its knowledge and facilities on their behalf in regard to source and quality of water and methods of sewage disposal, having regard to the present and prospective needs and interests of other communities or individuals that might be affected thereby. The approval of the board is a legal requirement to the consideration

by the Legislature of any application for authority to introduce any system of water supply or sewerage.

The board is also empowered to consult with and advise those engaged or intending to engage in any manufacturing or other business, as to the best practicable method of intercepting, purifying or disposing of any drainage or refuse that might result from the business, to the detriment of the water of the State. It is required to bring to the notice of the Attorney-General all instances which may come to its knowledge of omission to comply with existing laws respecting the pollution of water supplies and inland waters, and to report to the Legislature any specific cases not covered by the provisions of existing laws, which, in its opinion, call for further legislation. Finally, and very materially, the board is provided with funds to sustain the corps of engineers, chemists and inspectors whose labors are needful to the proper performance of its duties.

The report of the Board's proceedings under these heads, submitted to the Legislature in January of this year, shows the excellent work that may be accomplished in this way. Eleven applications from cities and towns for advice concerning water supplies were received; eleven for advice concerning sewerage; two soliciting action to prevent the contamination of particular water supplies; and one from a manufacturer for advice concerning the disposal of drainage from certain works which he purposed establishing. The important question of a water supply for the cities of Boston, Chelsea and Somerville, and the town of Everett, was one of those that came before the Board. There are 123 sources of public water supply in the State; but over 200 samples are investigated chemically and biologically every month, the samples being from rivers, ponds and other sources that may be utilized in the future. Experiments are also in progress on methods of sewage disposal, which will add considerably to our knowledge of the results which may be obtained in that direction.

With the aid of the State, the local authorities, in their efforts to obtain and preserve a wholesome water supply, would experience no difficulty that could not be overcome by the expenditure of the necessary funds. The twenty-mile limit will in progress of time be blotted out, and the waters of the State be sharply divided into those which may be used as sources of domestic supply and those which carry off the waste water. The water supply and sewerage systems of the State—of the country—should be as distinct as those of every household, and the sooner this is accomplished the sooner will the rates of sickness and death be decreased among our people.

Your committee, therefore, urge a livelier interest in this important matter on the part of State Boards of Health—an interest which is not satisfied with discussing and subscribing to sanitary views of the subject, but which will leave nothing undone that will tend to invest them with power to act for the preservation of the public health. With all our boards operating, each within its domain, there would be no need of a committee of this Association to investigate the subject of water pollution. In concluding, we submit the following resolution:

Resolved, That it is the well-considered belief of this Association that it is an imperative necessity, especially in the more populous States, that State Legislatures should give their boards of health that financial support which would enable them to act intelligently on all questions pertaining to the public water supplies, investing them at the same time with the supervision of the said supplies, and with power to preserve these waters from contamination by sewage or other injurious matters.

CHARLES SMART,
S. W. ABBOTT,
G. C. ASHMUN,
W. W. DANIELLS,
EDWARD PLAYTER.

SUNDRY PAPERS.

1. What Has Been Done and What Has Not Been Done by the State Board of Health.
 2. The Ounce of Prevention.
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WHAT HAS BEEN DONE AND WHAT HAS NOT BEEN DONE

BY THE STATE BOARD OF HEALTH.

BY GEO. HOMAN, M. D., ST. LOUIS,
Secretary of the Board.

(An address delivered at the meeting of the Missouri State Medical Association at
Kansas City, April 19, 1888.)

Mr. President and Members of the Association :

The State Board of Health, at the last meeting, by resolution desired me as their Secretary to appear before you at this time for the purpose, as the resolution expressed it, of indicating what has been done and what has not been done by the State Board of Health.

To the regret of the members of the Board, and as we believe unhappily for the State, the sum of what we have been able to accomplish is insignificant when compared with what should have been done ; but that this is unfortunately true arose through no lack of desire on our part to have it otherwise—through no culpability or dereliction of duty that may justly be laid at our doors, as we further believe.

The older members of this honorable body do not need to be told the history of the Board, inasmuch as it is in a sense the legitimate child of this Association—the law creating it representing the culmination of years of effort on the part of many members of this organization.

At each recent annual meeting you have been informed in regard to the existing status of affairs as concerns the Board, and of the difficulties experienced in saving from shipwreck what was gained in legislation only after years of persevering effort on the part of some of the best of the medical profession in this State.

So far as I feel authorized to speak for the present Board, it is the truth to say that the offices have sought the men. In this instance at least there were no spoils to enjoy, no official emoluments to gain.

The trust imposed upon them was to keep alive certain laws, to preserve to the future enactments the lapse of which would have been alike disgraceful to the State, and unfortunate and discreditable to the medical profession.

Rightly or wrongly, Missouri has been jeered at by unfriendly critics for a number of omissions and delinquencies, real or imagined; but for the world to have known in this enlightened time that the only law by which the general health could be protected and our people defended against pestilence from abroad had been abandoned, would have fixed a stain upon her reputation and caused a shock to the better sanitary sense of the country at large that would have reacted injuriously upon the varied business and professional interests of the State.

To my knowledge, no sanitary law enacted by any State has ever been repealed without its place being supplied by an improved enactment, or an attempt in that direction; and for Missouri to deliberately abandon a law which is one of the standards by which the civilization and progress of a people are measured, would be to give the State a bad eminence among her neighbors, for which her right-thinking sons and daughters could only blush, and as charitably cover and excuse as lay in their power.

Although the legislative cold shoulder was fully presented by the General Assembly last session, this was looked upon as a result of indifference and ignorance of the importance of the matter by legislators, rather than positive hostility to sanitary work. But whatever the reason, the fact was that not so much as one dollar was placed to the use of the Board for any purpose.

After full consideration of the perplexing matter in its different bearings—regard for the fair fame of the State, for the good of the general public, for the medical profession and other special interests directly concerned—the Board concluded that because the Legislature was derelict would not justify failure on their part in performing their appointed duty to the full extent of their ability, even if to do so involved many unpleasant contingencies, and the expenditure of time, labor and private means, any future compensation for or reimbursement of which by the State seemed at best problematical; but the determination was taken to keep secure what had already been gained in progress, in the hope that better times would come, when perhaps the work could be transmitted to abler and worthier hands for fuller development and practical application.

To make decided sanitary progress, money is necessary, and as none has been furnished the Board for such purposes, of necessity no active measures in this direction could be undertaken.

The defense of the public, internal and external, against communicable diseases in man, and to a certain extent those of domestic animals, is committed to the Board, and the quarantine power was exercised with the best results in the fall of 1886, when contagious pleuropneumonia among cattle at Chicago threatened the entire country; and restrictive measures to prevent the spread of small-pox from local centers of contagion in the northern part of the State the past winter were also applied.

In the experience of the past few years, nothing was felt to be more urgently needed than the formation of local boards of health to co-operate with State officials in prosecuting sanitary work, to furnish accurate information in regard to prevailing disorders, and to aid in the restriction of dangerous spreading diseases.

This was felt to be so important that a bill was introduced into the Legislature the last regular session, making it obligatory upon counties and towns to organize such bodies; but the bill failed to become a law, together with needed amendments in existing sanitary legislation, although they were favorably considered and reported.

A few of the counties have continued regularly to make returns of births and deaths as required by law, and all returns received have been taken care of; but in most of them this duty is neglected, and in the absence of funds to pay clerk hire the Board has been obliged to let the matter rest—the result being that there is little positively known as to prevalence of disease throughout the State based on official information.

When so much has been accomplished in this respect in Michigan, Illinois, Minnesota and other Western States, where epidemics almost die a-borning, or are promptly strangled at birth, and the benefits of such work have been so fully shown, it is a cause of additional regret that our own large, rich State is so backward in this regard.

Another main division of the work is, as you know, the administration of the Medical Practice act; and in this, as in all other important questions coming before them, the Board has stood as a unit—every member, medical and non-medical alike, being alive to the importance of sustaining this enactment in its fullest purpose and power to the utmost extent of his ability.

The honored head of the Board, Major Gentry, with clear-sighted judgment, foresaw the confusion and mischief that would follow should this law be suffered to lapse, realizing in such event that neither reputable physicians nor the public could offer any effectual opposition to the harpies who sail under the title of doctor and prey upon the physical misfortunes and sufferings of the ignorant and credulous; and an

instance of the wholesome operation of the law in this respect coming under his notice only strengthened his determination that it must and should be maintained—he reasoning that should the law fail, not only would the State be opened to the inroads and depredations of the whole brood of predatory itinerants, but that it would become a refuge and snug harbor for the medical castings of other States—those forced to emigrate through the operation of laws intended to purify and make better the profession.

There may be differences of opinion among physicians as to the utility and value of such a law as ours, but the admirable results that have followed its enforcement in other States after years of trial, go to show that it is sound in essential principle and salutary in operation to both the medical profession and the public.

Of course, no legislative enactment, and no body brought into existence by such means, can or should take cognizance of ethical differences, of offenses within the profession; to assume such functions would far transcend their powers and duty; no law can make men inwardly honest or honorable; but grosser offenses formerly committed by unworthy medical men, flagrant villainies that received no legal check or punishment, are now under ban of law, and their perpetration has been much diminished in frequency through the operation of such medical acts, favorably construed as they have been by the highest judicial tribunals of the States.

To delude the unwary and credulous by fraudulent pretensions; to impose upon the ignorance or inexperience of those suffering from mental or physical diseases; the soliciting and procuring of patients to submit themselves to medical treatment by statements intended to deceive, and which are known to be false—all these have been declared by the highest judicial authority of a neighboring State sufficient cause to forever debar a physician from being permitted to exercise his calling, and properly subject him to the pains and penalties of such a law.

Proceeding upon the lines thus indicated, the Board has held the good of the people and the medical profession as the chief concern, and accordingly has been slow to grant license in cases where there appeared good reason for such delay, or for final refusal where, after full inquiry and investigation, the applicant was found unworthy of such recognition.

Another useful result achieved has been the dethronement of the medical diploma, with a shrinkage of the extravagant value that once attached to it, and the establishment of the principle that such an instrument cannot be safely accepted as a voucher of the owner's rectitude through all his professional life, however honored and worthy the

names affixed to it may be. The character of the man must be held to fix his standing—not a combination of ink and parchment, certifying that a course of study was completed on a certain date, perhaps thirty years ago, and which is too often held up as a cover for the accumulated subsequent misdeeds and rascalities of the owner.

While all the evils which the act was designed to extirpate have not been removed, still I think it may be truthfully said that there has been a perceptible diminution effected in their volume; and while all has not been done in this direction that may be desirable, still the fact that the law is alive, and that injured parties can invoke its protection against unlicensed practitioners, has had a salutary effect. Offenders have been punished by fine and imprisonment, and this knowledge has had a good effect outside the State, exerting a deterring effect upon freebooters in other parts of the country who are meditating an incursion into the State.

Turning now, with your permission, to considerations more immediately before us, and speaking only of the other members of the Board, I may be permitted to say of those gentlemen who have always been patriotically prompt and willing in the discharge of the duties of their unappreciated positions, who have freely spent their time, labor and means in public service, who have not only borne their own expense, but are now contributing a monthly sum to defray necessary expenses—I may, I think, say of these members as was said in Roman times: They have deserved well of the State.

But, gentlemen, while they have faithfully tried to do their duty amidst much discouragement, the issues of the near future are not in their hands, but in yours. For, if within the next twelve months public opinion is not quickened to that extent that it shall imperatively demand of the legislative power proper material support for the Board, a year from this date it will of necessity have ceased to be. The field of usefulness for such a body is vast, the harvest is ripe, but having made a stand for the sanitary welfare of the State, and for decent, honest medical practice, the members feel that without active support from physicians, and the public whom they can favorably influence, further effort will be without avail and the laws must lapse—a contingency, as before intimated, that would be alike disgraceful to the State and unfortunate and detrimental to every reputable member of the medical profession.

The Ounce of Prevention.

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The importance of the element of precaution in all affairs of life is popularly recognized in the common saying of which the title of this paper is a part, which is completed by the added statement that it is worth a pound of cure.

Perhaps through much repetition of this saying in connection with almost every human contingency, the truism has lost to the ear some of its native force and value, and does not always strike even the medical mind with the sharp impact and clear delineation that should attach to it as a popular proverb weighted with a word of truth. But imperfect though the application and impression be, there can be no doubt that in a public health sense, prevention or precaution on the part of communities and peoples is the beginning of wisdom, and my design is to try to aid this beginning by endeavoring to show how profitable it is to the public, now and always, and further that it is a gain and not a loss in a business sense to physicians.

If, in the founding and progressive development of the towns and cities of this State, there had been always displayed wise forethought and consideration of how disease might be spared to coming generations of their inhabitants, how different might be the tale of our mortality returns of city and town populations, imperfect and fragmentary as the best of them too often are; and how stupendous would be the sum total of the cash value of human life needlessly lost then and now through ignorance or mischance, for which, in large part, those in authority are responsible. The people perish for lack of knowledge, it is true, but this lack is curable, their own ignorance being an influential factor in the result; from which it follows that public health work is largely educational in character.

But in the rush and fever of city-making, a fever that may be seen in its best or its worst aspect, in whichever sense you may choose to take it—in this bustling emporium where we now meet, how many, in the midst of the ant-hill moil and stir, pause to consider the miasms and pestilences that are being stored up for coming generations; the domestic scourges perpetuated that shall bereave families and households yet to be; the population infections transmitted that shall gnaw at and consume the sinew and fibre of industrial and laboring classes with insidious and perpetual wasting, and for a great part of which we of to-day will be responsible.

How much of what the people of the present time suffer in preventable sickness and death is due to bequests of hoarded infection coming down from former generations may hardly be told! In many things, no doubt, our forefathers builded wiser than they knew, and in the avoidance of causes of disease it may be they builded to the limit of their knowledge; but can or will as favorable a judgment be formed of us by those who follow half a century hence, and upon whom will fall the burden of grief and loss wrought, not so much by the ignorance as by the carelessness, selfishness or recklessness of the present generation?

It may be the inexorable law of nature that the course of human progress, of pioneer effort and rising enlightenment, shall be marked by human bones; but whoever gazes backward over the course of our march must note the shocking excess of young bones over old bones, of bones culled from among the choicest of childhood and youth and adult life, rather than from the veterans, the worn-out, the superannuated of the human race—those who have borne their share in life's work and have fallen at last under the accumulated weight of years.

During 1886 and 1887 there were about 1,850 deaths from diphtheria and scarlet fever combined in the city of St. Louis, a vast proportion of the decedents being under twelve years of age. These diseases rank among the peculiar scourges of infancy, childhood and youth; they are recognized by sanitarians as being among the avoidable population infections, and largely amenable to preventive measures intelligently applied.

During the same years in the same city there died about 1,750 persons from consumption and 240 from typhoid fever; and of these there were few who had not reached maturity, by far the greater number perishing in early adult life, when their productive value to the State was greatest.

Now, just what may be the cash value of these nearly one thousand adult lives lost yearly in a single community is a somewhat difficult

problem in political economy. The law places the value of a life lost by the neglect or fault of another at \$5,000; but to be more moderate in figures, it may be supposed if all these people had had black skins, and the time were thirty or more years ago, they would easily have commanded five hundred dollars apiece, slave market quotations. This basis of calculation would show a yearly cash loss in human life of half a million dollars from two diseases only, a large proportion of which loss is avoidable by preventive measures; and that the estimated value given is extremely low is shown by the fact that if the wage-earning capacity of such a body of people averaged only fifty dollars each per year, the total would amount to ten per cent of the half million, or \$50,000 annually.

This estimate, moreover, takes no account of losses from inability to work due to sickness of which the fatal ending was the consequence, during which illness the doctor is usually in attendance, and which period in typhoid fever is rarely less than one month, and in consumption seldom less than a year.

In political economy, likewise, there is a money value affixed to the life of every child, even at the breast, but it is somewhat more difficult to ascertain this value than in the case of adults. However, I was once told by a mother, who was the wife of a professional gentleman, that in her experience every baby cost \$500 the first year of its life, and she was well qualified to give an opinion, having had ten little experiences of this kind herself.

The diseases named as being so destructive to young life usually kill quickly—in this respect in an economic sense differing favorably from the specified affections more peculiar to adults, and generally not entailing the financial expenses incident to diseases of long natural duration.

In comparison with the extremely low partial estimate given of the value of life lost yearly in St. Louis—the sum of which would reach millions, if the total preventable deaths and diseases could be ascertained—a glance may be taken at the public money spent in prevention, directly and indirectly.

While the money spent in extending the water and sewer systems contributes decidedly to the sanitary benefit of the people, and while a portion of that expended on the police force may be so reckoned, inasmuch as many dangerous nuisances are reported and abated in consequence, still the appropriated amount of revenue applicable to prevention of disease—that is, to work intended to immediately lessen the amount of sickness and death occurring in tenements, households and families—is absurdly small. If the value of avoidable deaths and

sickness per year in St. Louis be placed at one million dollars, it is doubtful if the half of one per cent of that sum is expended directly in work of sanitary precaution. And very much of that which is done consists in the undoing of previous bad work, or correcting the mistakes of former years; and it is self-evident that such mistakes are of the most mischievous and costly kind as regards population health, operating continually among the people with cumulative power for distress and evil.

I have instanced the city of St. Louis in this connection for no invidious reason, but only because of the fact that a public health service has been in existence there longer than in any other place in the State, and that the possibilities for good of such a service, and its value to the public if properly supported financially, may be shown there on a larger scale than elsewhere within our boundaries.

A homely proverb says that our best friends are those who tell us of our faults and teach us how to correct them; and carefully kept official records of causes of death and kinds of sickness occurring in a community are monitors whose sanitary value cannot be overestimated. Indeed, in no other way can the extent of preventable mischief be ascertained, and the proper remedy determined and applied; and it follows that sanitary organization is the first necessary step to this end in any town, city or State that desires to know the honest facts in regard to its condition, however unpleasant and uncomplimentary they may be.

This will doubtless sound to many who are present like the echo of a thrice-told tale, when the years of effort expended by many members in this direction are recalled; but in no State is reiteration of this statement more needed than in Missouri, where, outside of the principal cities and towns, organized active public health work is scarcely known.

That such a condition of things should be does not comport with our pretensions to learning, to attainments in knowledge, to civilization; for the degree to which preventive medicine obtains in a given community is a not unfair index of public intelligence and enlightenment. And as members of an enlightened and advancing profession, we are scarcely living to full purpose if we fail to understand that antiseptic measures, as now applied to the individual, are but a partial development and application of a system of preventive medicine that should include whole populations in its beneficent reach and compass.

If the people of Kansas City to-day are heedlessly planting deep and wide the seeds of diphtheria, scarlet fever, consumption and other preventable plagues that shall rise up to smite coming generations—as

has been the case in St. Louis and elsewhere—through failures and oversights in household and public drainage, or mistakes in the preparation of building sites; if they do not provide suitably for a clean, dry soil, pure water and pure air, they are bestowing on their descendants an inheritance of sanitary evil for which the sober intelligence of mankind will not hold them guiltless when children shall needlessly perish, and strong men sicken and languish from ills that should not be.

It is sometimes suggested that if the full fruits of prevention were reaped the occupation of physician would be gone; but the more the matter is considered the more am I convinced that there is no soundness in this view, for the reason that the vast burden of loss from preventable disease falls mainly on the poor, on the laboring and industrial classes. What physician ever received full compensation for services rendered in such diseases, and what proportion of the compensation received was in the form of checks on banks?

The vast majority of such debts are paid out of the daily or weekly wages of working people, comparatively few of whom have accumulated a surplus above their daily needs.

So it is not the real diseases, the diseases that prevail chiefly among the poorer classes, the preventable diseases, that broadly speaking pay the physician, but rather the more or less fancied ailments of higher life.

By preventive measures among the population most liable to disease, their wage-earning power is increased and made more constant, and their ability to pay adequately for medical aid is increased in proportion.

But far above any narrow business or selfish pecuniary consideration rises the natural right of those born into the world to health and years. It is a right which to the credit of mankind is being recognized more and more as time progresses. The coffin-makers have ridden in coaches, while those just as good, and whose expectation of life should embrace lengthened years, have ridden in hearses. More idleness to the undertakers and less work for the diggers of graves, large and small, must in time surely come from the labors of physicians and sanitarians who see the drift of modern medicine, and, thus seeing, in provident work and wisdom speed the time when prevention and not cure will be the test of professional learning and skill, with all the measureless benefits, economic and physical, that must flow therefrom to generations yet to be.

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